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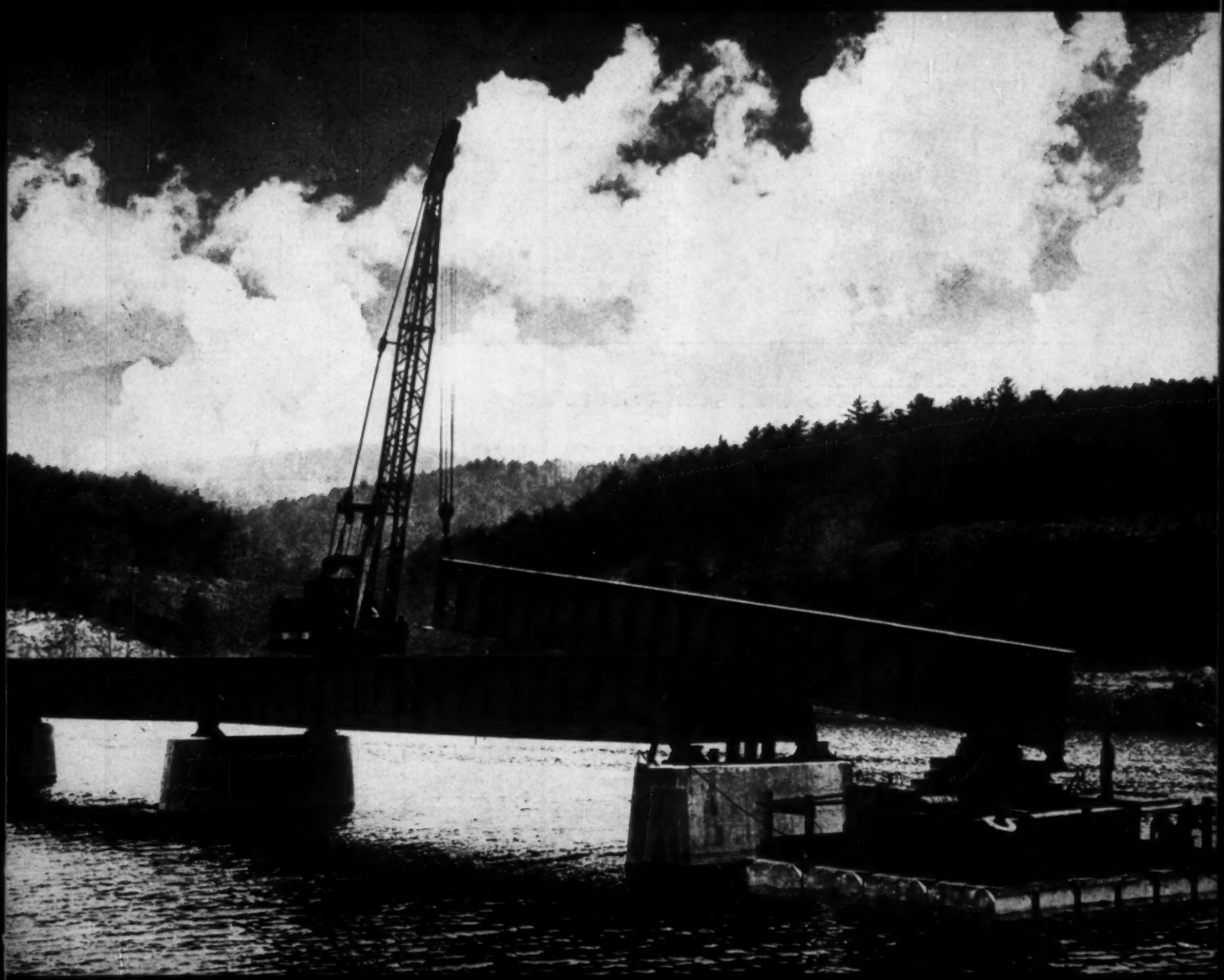

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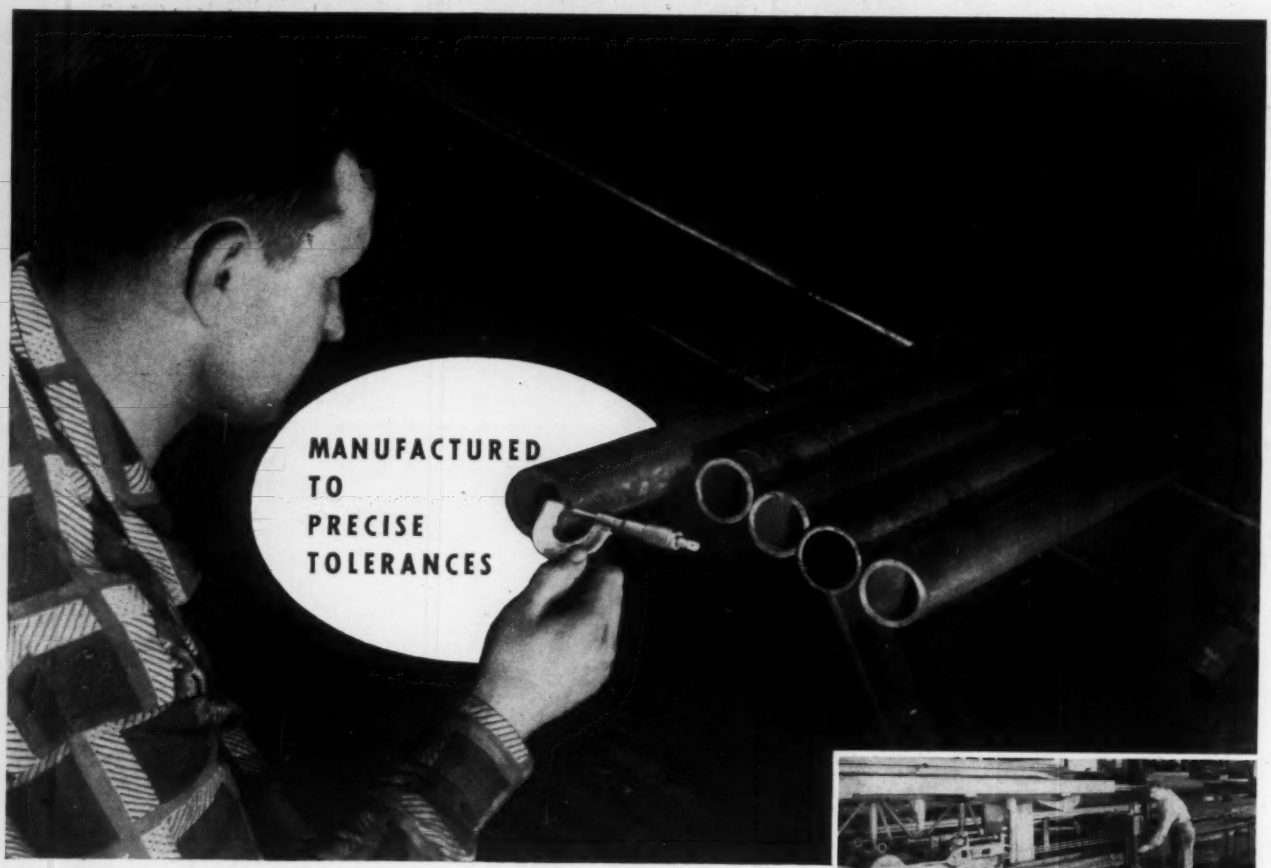

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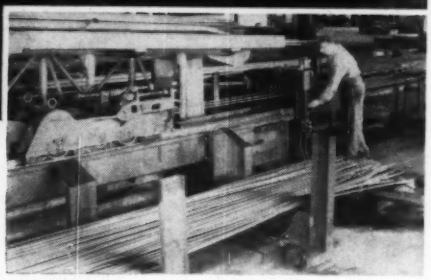
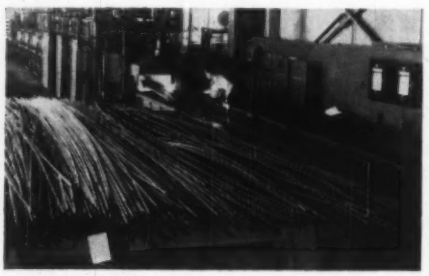


"Drawing" process—mandrel controls inside diameter and die reduces outside diameter as tubing is drawn. Interior and exterior of tubing are smoothed in process.



Annealing process restores ductility of the tubing. Ring gauge is then used to check OD, followed by a micrometer reading for wall thickness.

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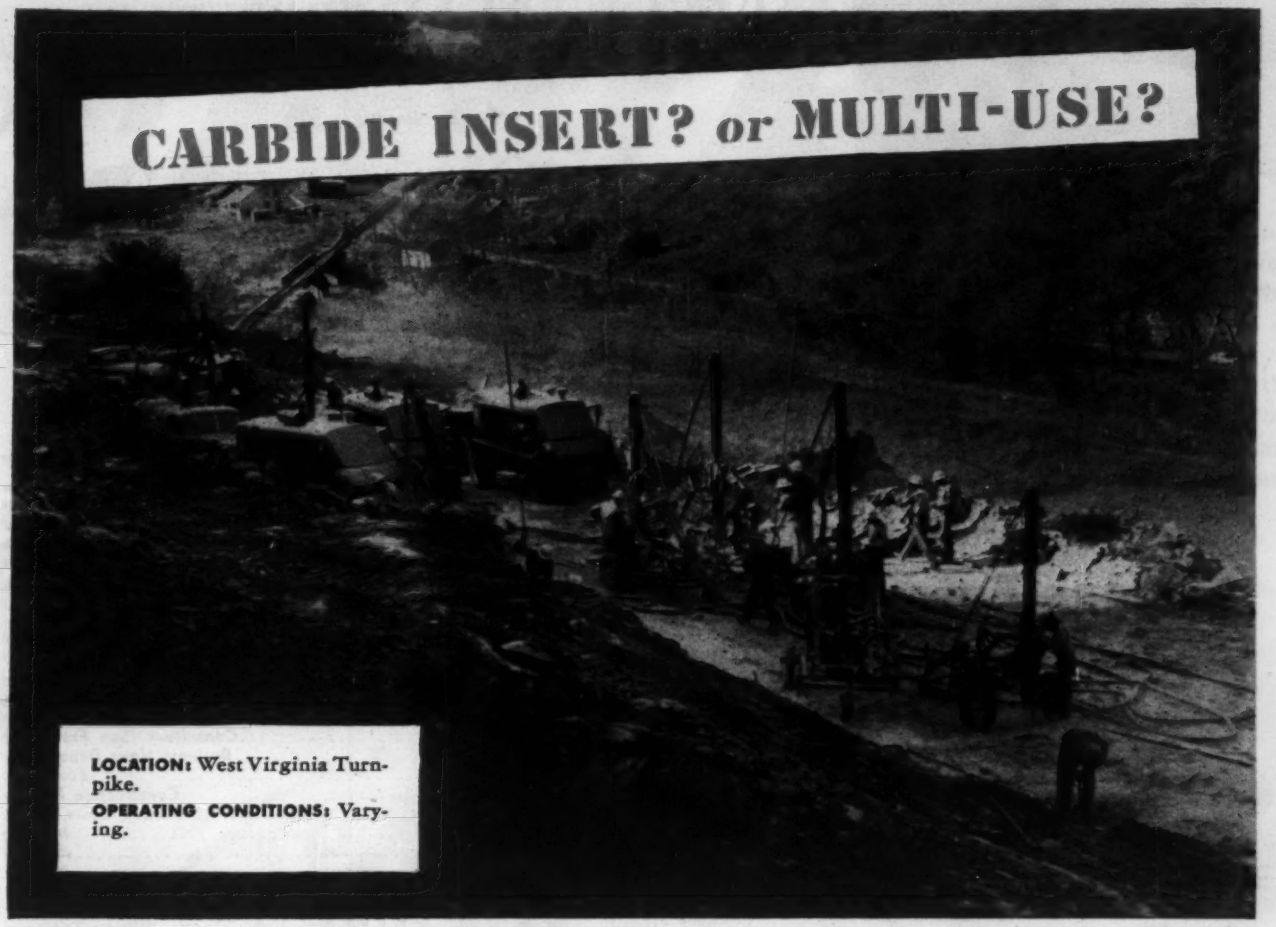

14 out of 17 contractors on new West Virginia turnpike cut drilling costs with TIMKEN® multi-use bits

SEVENTEEN contractors equipped with 189 wagon drills did the drilling on the new West Virginia turnpike and 14 of them used Timken® multi-use bits. Some tried other makes and then switched to Timken bits.

These 14 contractors found that, all things considered, Timken multi-use bits gave them lowest cost per foot of hole drilled. In the first place, the large range of Timken bit types and sizes enabled them to select the best bit for each job. Good bit reconditioning service was on hand and the contractors were able to secure a number of bit uses.

If you're drilling ordinary ground, Timken multi-use bits are most economical. However, for extremely hard and abrasive ground, Timken *carbide insert* bits drill faster and more economically. They're also best for drilling constant-diameter holes, small diameter blast holes, extremely deep holes. Some of the turnpike contractors used Timken carbide insert bits when they encountered exceptionally abrasive ground.

All Timken bits are interchangeable in the same thread series and a wide range of different bits fit the same steel. You can change bits right on the job. All Timken bits are made from Timken fine alloy steel and have special shoulder unions to protect the threads from drilling impacts.

Get the bits best fitted to your drilling needs. Call the Timken Rock Bit Engineering Service. The Timken Roller Bearing Company, Rock Bit Division, Canton 6, Ohio. Cable address: "TIMROSCO".

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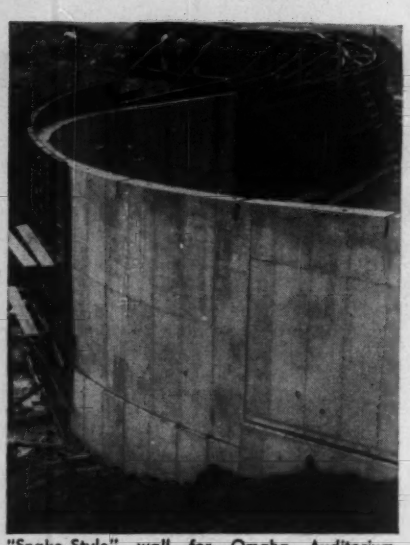

"Snake-Style" wall for Omaha Auditorium grounds. Peter Kiewet & Sons, Omaha, Gen. Con.

Symons Forms on Serpentine Retaining Wall

Symons Forms were used exclusively to form this serpentine retaining wall which is 20 feet high at the highest point and slopes to 8 feet high at the lowest point. These walls were constructed to facilitate parking on the grounds of Omaha, Nebraska's new city auditorium. Symons Forms were used for 30,000 square feet of forming on this job.

Symons Engineering Staff furnished complete form layouts and cost sheet for all the form work. This service was rendered at no charge to the contractor. In addition, Symons fieldmen gave regular on-the-job service.

Symons Engineering and Field Service is available to all contractors. On your next job get complete job layout and cost sheet—no obligation. Symons Forms, Shores and Column Clamps can be rented with purchase option. Paid rentals apply on purchase price.

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CONTENTS ON PAGE 17

Waldo G. Bowman

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Testing Amvit Jointed Clay Pipe are from, (L. to R.) E. T. Davis, Partner, The Chester Engineers; Joseph Diulus, President, Diulus Construction Company, Inc.; C. K. Stroh, Partner, The Chester Engineers; and Tracy Price, American Vitrified Products Company.

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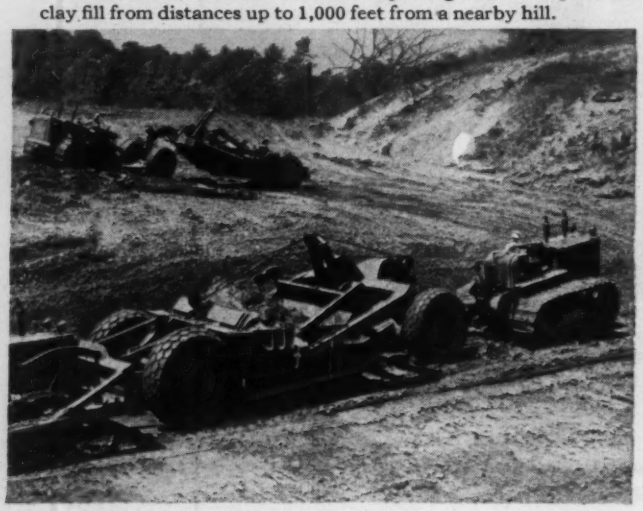
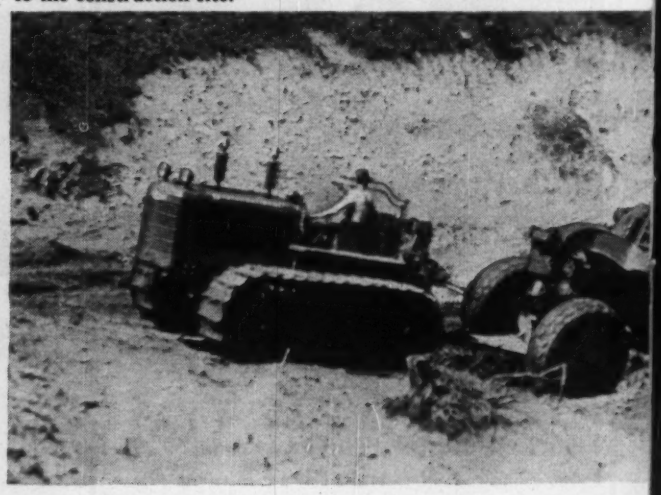
DAM FOR CORDRY LAKE, 700 feet thick at the base, is built by this fleet of three INTERNATIONAL TD-18A crawlers and scrapers and one INTERNATIONAL TD-14A with hydraulic dozer used for push-loading on inclines and in soft spots, and some other equipment.

LAKE LEAKAGE is eliminated by removing all porous soil and stone from the site of the dam base and replacing it with impervious clay fill from distances up to 1,000 feet from a nearby hill.



BUILDING UP THE DAM BASE moves along on schedule as one of three TD-18A scraper combinations brings a heaping load of clay to the construction site.



Moves 1,000,000 cubic yards to build a lake

Howard Prince, veteran Indiana contractor, has used INTERNATIONAL crawlers to build more than 100 lakes since 1935—and he has two large lakes under construction right now!

A water shortage is being remedied and a new vacation area opened by a chain of fourteen lakes being built across Brown County, Indiana, by veteran lake builder Howard Prince, head of the Prince Lake Building Company, Nineveh, Indiana.

Latest and largest in the chain is Cordry Lake, the 103rd lake to be built by Prince.

Cordry Lake, which will eventually cover more than 600 acres, is being created by building a dam 750 feet long, 120 feet high, across two small streams. In excavating unsuitable material from the dam site and borrowing leakage-proof clay from a nearby hill, the lake builders will move over 1,000,000 cubic yards of dirt.

The entire job is being handled by Prince's fleet of seven INTERNATIONAL crawlers with matched IH scrapers and blades, and some other equipment.

Howard Prince has been an INTERNATIONAL owner ever since he first started in business, and states: *"I bought my first* INTERNATIONAL *crawler in 1935 and I've been using them ever since.*

"I've been increasing my INTERNATIONAL *equipment until I now have three TD-18As with scrapers, two TD-14As with blades, a TD-9 and two TD-6s on this job.*

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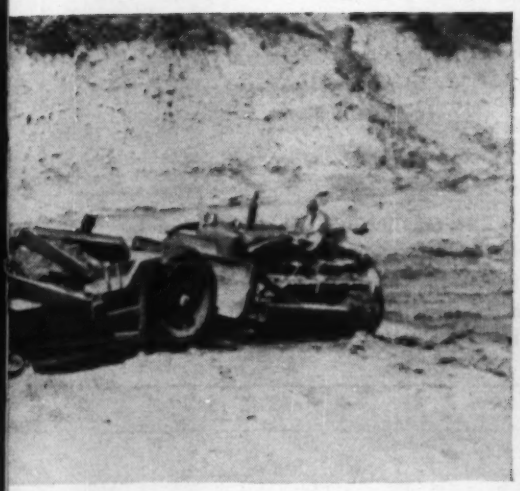
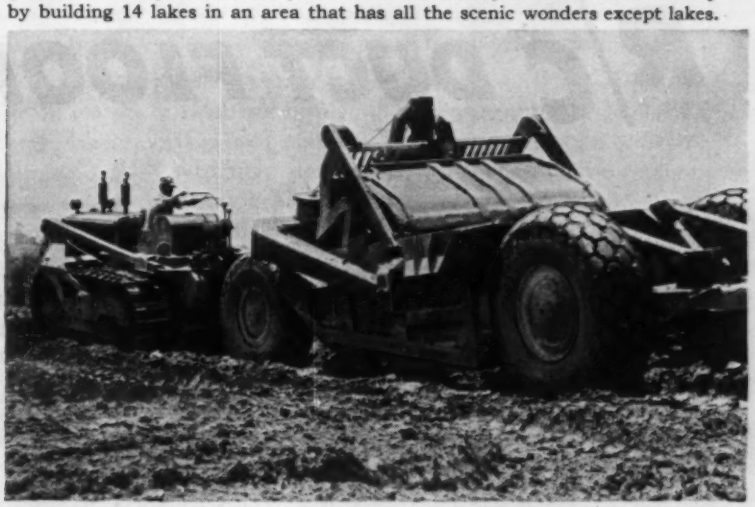
REMEDY FOR NATURE'S OVERSIGHT. The Brown County Lake Development project is adding immeasurably to the natural beauty of that Hoosier county by building 14 lakes in an area that has all the scenic wonders except lakes.





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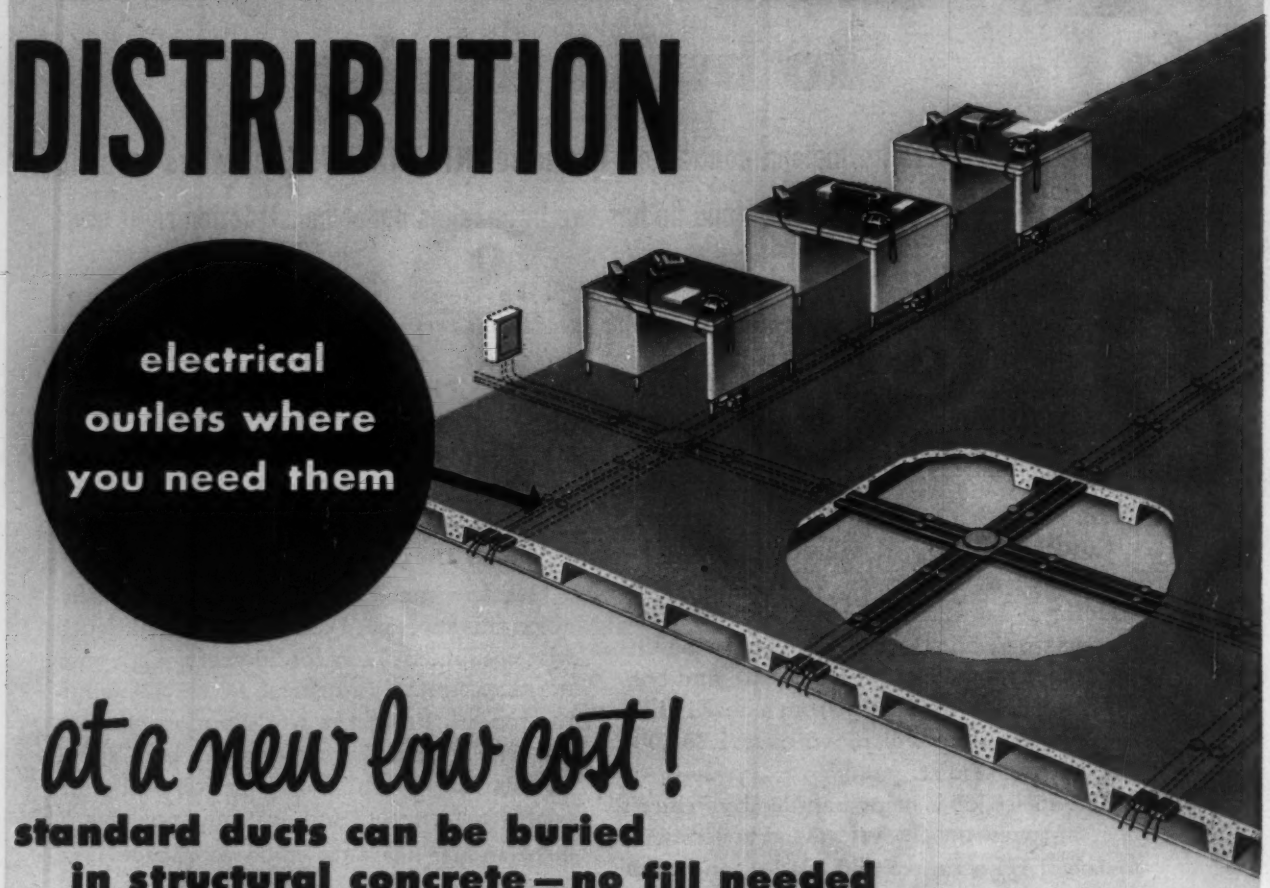

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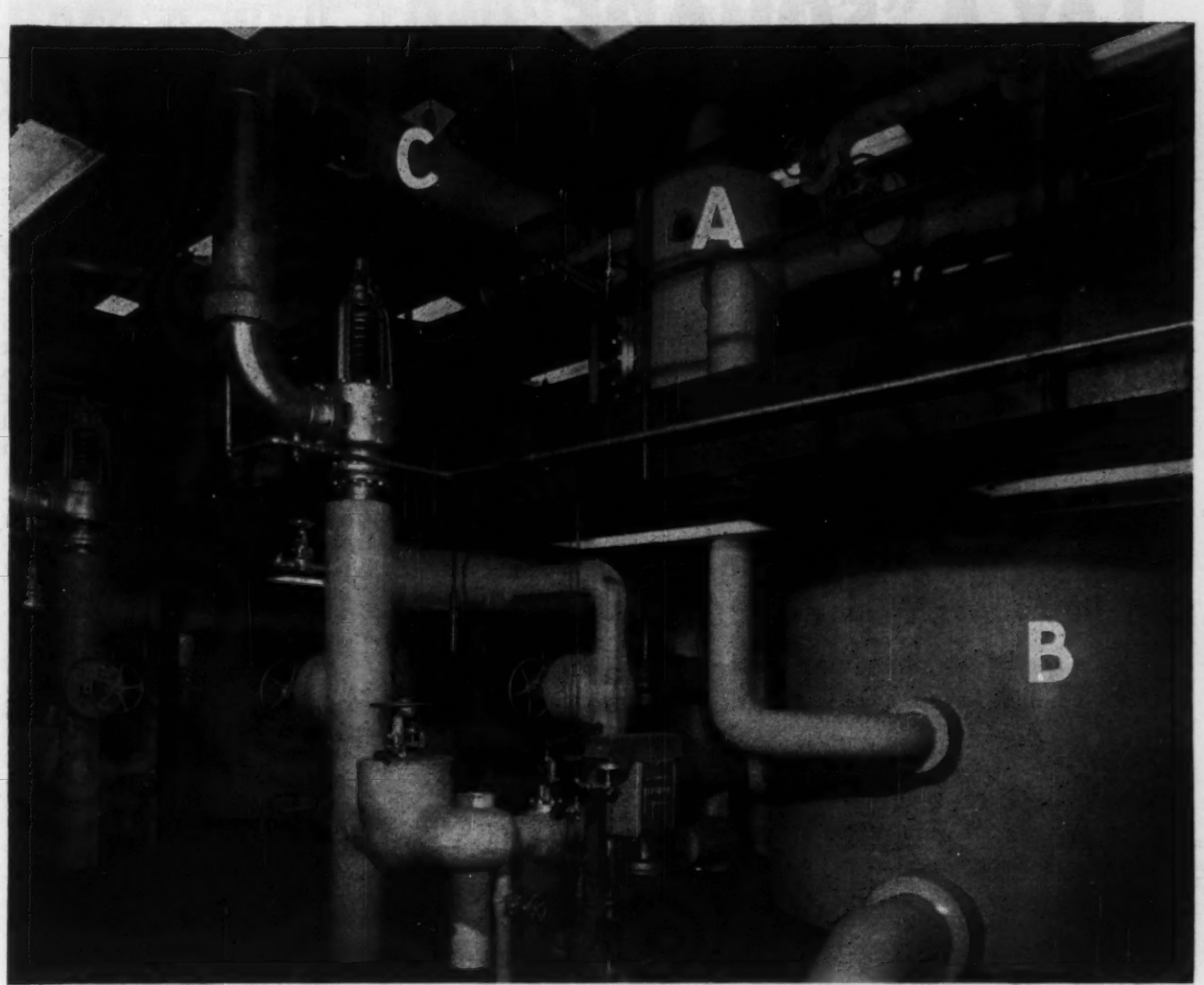

Piping and equipment in the Sunbury Steam Electric Station of the Pennsylvania Power & Light Company, insulated with "Featherweight" 85% Magnesia Insulation. The flash tank, "A", and the deaerator, "B", which operate between 250 and 275°F. are insulated with 2 inches of 85% Magnesia and ½ inch of asbestos cement. The piping, indicated at "C", is insulated for the protection of personnel.

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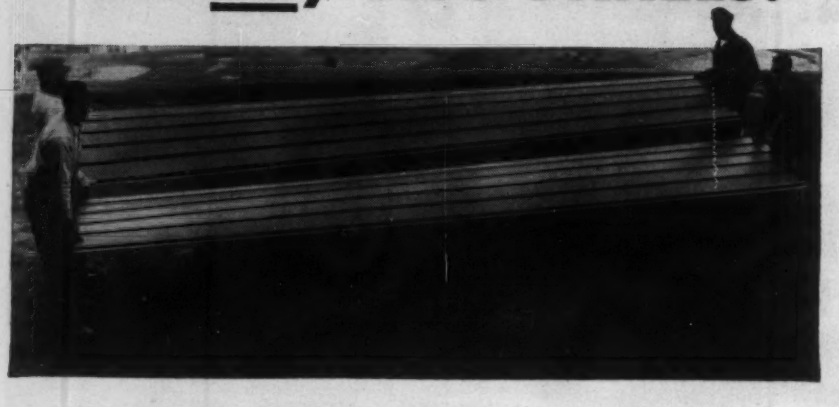

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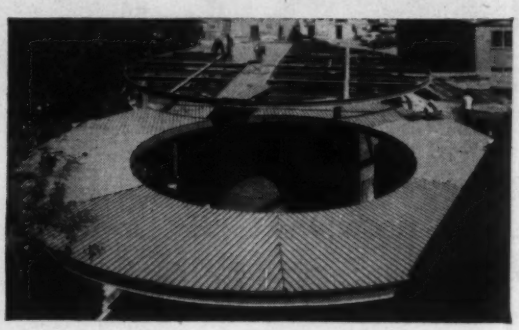

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For more complete information consult our catalog in Sweet's Architectural File 2dAi, or write . . .

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READER COMMENT

Success in Engineering

SIR: Sincere congratulations on the editorial "Engineers in Politics" (ENR Dec. 23, 1954, p. 64). The last paragraph sums up the whole story very effectively: "Gaining experience in dealing with people by active participation in community activities is a good way for a young engineer to learn that many problems cannot be solved with a slide rule. It will make him a better citizen and will give him a good grounding for more useful service in a political party. And, significantly, it should make him a better engineer. Certainly it will make him a better executive when the opportunity for advancement to an executive position comes."

A college diploma cannot guarantee an engineer an unusual earning power or assure for him the praises of the public. In many respects, the graduate engineer is little different from all other college graduates. Certain fundamental human qualities are just as essential to successful living as is an education, and some times even more so.

Your last paragraph points the way to an excellent training ground in living successfully with people; and gaining their respect. The able young engineer will go on from there.

ENOCH R. NEEDLES,
Howard, Needles, Tammen & Bergendoff,
Consulting Engineers
New York, N. Y.

Clay Tile Is Modular

SIR: Congratulations to ENR for its editorial contribution to the advancement of modular measure in the Dec. 23, 1954, issue.

It seems to us incomprehensible that such an obvious solution to the problem of reducing building construction costs has been ignored to such an extent for so long a period by the majority of the building industry. ENR's editorial should do much to further the cause.

Your editorial states that too many manufacturers, particularly of brick and structural tile, have held back too long on the manufacture of modular products. It is possible, of course, but I know of no non-modular structural clay tile production in the United States. Certainly, the vast majority of structural clay tile is modular. Virtually all of the structural clay tile made in the Southwest is modular and the members of this association pro-

Here's why BOWER straight roller bearings can carry maximum loads—with less maintenance!

The important design features of Bower straight roller bearings shown on this page are just a few of the reasons why these bearings will operate efficiently and economically in your product. Consider these facts, too. Bower straight roller bearings incorporate highest quality materials and workmanship. They have proved themselves capable of standing up day in and day out under maximum loads—with little or no maintenance.

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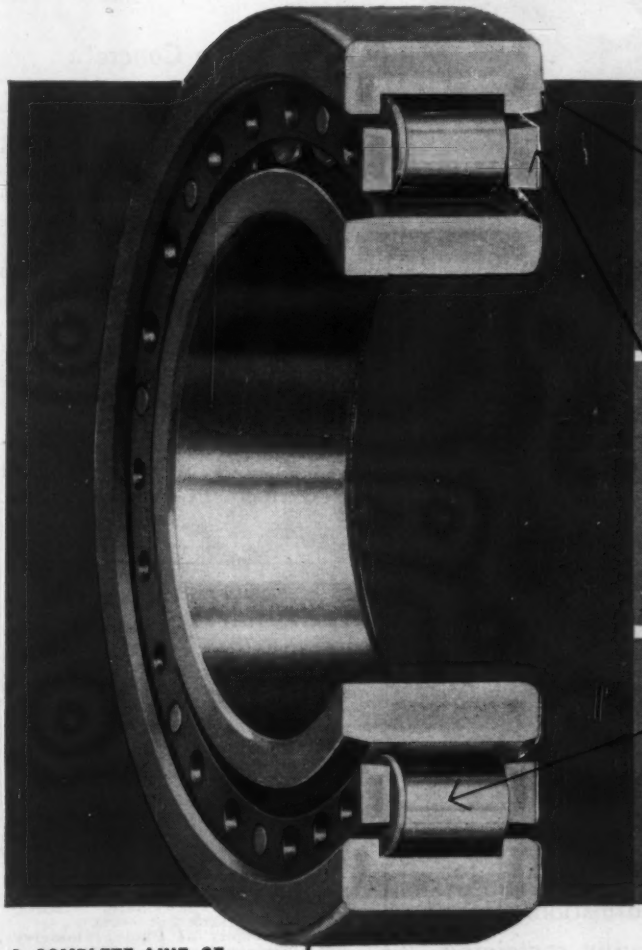

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CLAYFORD T. GRIMM
Executive Secretary
Clay Products Assn. of the Southwest
Austin, Texas

Sub Placed the Concrete

SIR: With reference to the article, "Foundation Mat Placed In Thirteen-Hour Pour," which appeared in ENR Dec. 2, 1954, p. 26, we call attention to the fact that your information is incomplete.

We have the subcontract for the foundations and the superstructures on this project (General Grant Houses).. The work described in the article is part of our contract, and all of this work is being done by our forces and under the supervision of Larry Starito, our superintendent.

FRANK J. PAGLIARO
President
Knickerbocker Construction Corp.
New York, N. Y.

CALENDAR

National Society of Professional Engineers, spring meeting, Hotel Charlotte, Charlotte, N. C., Feb. 18-19.

American Concrete Institute, annual convention, Hotel Schroeder, Milwaukee, Wis., Feb. 21-24.

American Institute of Timber Construction, annual meeting, Fairmont Hotel, San Francisco, Calif., Feb. 21-25.

Annual Highway Engineering Conference of the University of Colorado, Boulder, Feb. 24-25.

Concrete Contractor's Association of Greater Chicago, Mid-West Concrete Exposition, Navy Pier, Chicago, Feb. 24-26.

Association of Highway Officials of the North Atlantic States, annual convention, Hotel Traymore, Atlantic City, N. J., March 2-4.

American Society of Photogrammetry and American Congress on Surveying and Mapping, consecutive meetings, Shoreham Hotel, Washington, D. C., March 6-12.

National Association of Corrosion Engineers, annual conference, Palmer House, Chicago, March 7-11.

American Concrete Pipe Association, annual convention and meeting, Sheraton-Plaza Hotel, Boston, March 9-12.

Associated General Contractors, Roosevelt Hotel, New Orleans, La., March 14-17.

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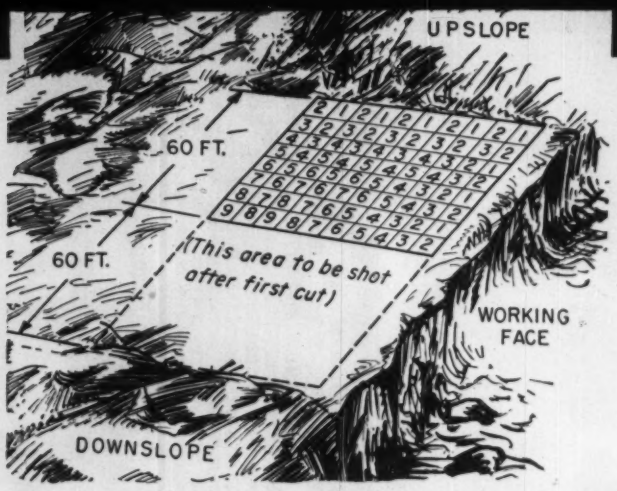

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ENGINEERING NEWS-RECORD

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CONTENTS

NATIONAL AFFAIRS

U. S. Must Boost Public Works Construction 21
Inland Florida Pike Favored 23
President Submits School Aid Plan 24
Congress Asked for Pollution Control Measures 24
How to Slash School Construction Cost 25
Joint Ventures Questioned 26
Canada Rushes Iroquois Lock Project 27
Grand Jury Investigates Miami's Port Authority 27
N. J. Authorizes 14-Mile Turnpike Extension 27
Government Balked on "Windfall" Profits Tax Levy . 27

FEATURES

Ingenuity Paid Off on Ohio Turnpike 36
Rail Bridge Cuts Two Sharp Curves 39
Warehouse Rigid Frames Are Two Spans of Precast Concrete 44
TVA Builds a Skimmer Wall 47

NEW PRODUCTS

Hoisting Tower Folds for Transport 65
Four-Place Exec Plane Gets "New Look" 65
Publications 68

MEN AND JOBS

R. L. Hearn Becomes Ontario Hydro Chairman 70
Col. A. E. Stoltz Heads Air Force Academy Project .. 70
Clarkson Engineering Co. Names Resident Engineer . 70

BUSINESS AND FINANCE

January Awards Top All Months Since May 1954 ... 95
ENR Cost Indexes Edge Up to New Highs 95
Four Pike Projects May Seek Financing Soon 96
Building Costs Are Stable—But Show Upward Tendency 97
Activity This Week 98

LABOR

AFL Blasts Mitchell for Wage Chiseling "Gimmicks" 99

Reader Comment 10
Calendar 12
Washington Observer .. 19
City by City 28
Obituaries 72
Material Prices 75
Construction Reports .. 84
February Scoreboard .. 93
Editorials 112

THE CONSTRUCTION WEEK

LABOR POOL?—Contruction contractors looking for skilled labor should take a closer look at the TVA area, as a side-effect of U. S. government spending economies.

By the same token, opponents of the Eisenhower Administration's power policies have a ready-made issue.

Here's the situation: President Eisenhower recommended appropriations of $27.6 million for TVA—said to be about a third of what TVA's own request would have been. Such a cut in funds, qualified observers say, would mean a total reduction of 5,400 employes—about 4,500 of them being hourly paid construction workers.

ONE MORE BRIDGE?—Although builders are now at work on the $100-million Packer Avenue Bridge across the Delaware between Philadelphia and Gloucester, N. J., work should be starting now to plan still another crossing, according to the Delaware River Port Authority.

Said Weldon B. Heyburn, state treasurer and new authority chairman: "It's no longer a question of whether more bridges are needed—but of where to build them."

Under study are a high-level bridge to replace the existing narrow Tacony Palmyra Bridge; new crossings at Allegheny Ave. and Hog Island, and at Chester, Pa. A crossing at Hog Island would have to be a tunnel, in order to prevent interference with the city's airport.

SIGNS GET TOUGH—Determined to discourage muscular vandals who cost the state something like $18,000 a year in road sign damage, Virginia has ordered new and tougher highway markers.

The new signs aren't entirely unbendable, but the new type—of a hard aluminum alloy—stood up in tests that involved a number of University of Virginia students who were reported to be of "greater than average strength."

TAX SOURCE?—That move to have the Pennsylvania Turnpike Commission pay taxes on its right-of-way where the land was condemned isn't given much chance in Pennsylvania's legislature. But the fact that such a bill was even introduced at the session is worth noting.

Two Democratic legislators who introduced the measure, point out that the turnpike has a 200-ft right-of-way from the Ohio border to the Delaware River, and that millions of added tax revenues would result if the pike had to pay taxes on it. The pike is now exempt from such levies.

Bethlehem Steel Pipe On The Job

IN FORT SMITH, ARK. — Nearly 12,000 feet of 22-inch Bethlehem Tar-Enameled Pipe was used in the new feeder main that supplies a fast-growing section of Fort Smith.

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WASHINGTON OBSERVER

The Administration faced its biggest buy-American test case under the new Eisenhower rule this week. It concerned bids for six new generators for the new Chief Joseph Dam on the Columbia River.

The British bidder should get the job if the Administration's present policy is applied as written. Last December, the White House decided to give foreign bidders a better break. Domestic bidders now have to come within about 10% of the low foreign bid counting in duties, to win government award.

The English firm is 14% under the lowest U. S. bidder on Chief Joseph. Figures are: English Electric Export and Trading Co., Ltd., $5,460,000; Westinghouse Electric, $6,338,000. Three other U. S. companies—General Electric, Elliott, Co., and Allis-Chalmers—also bid, but came considerably higher, all of them over $7 million.

Decision won't be along for a number of weeks, yet. Bid situation gets reviewed at every office that touches it: Corps of Engineers at Seattle, Portland, and Washington headquarters; then it goes to Secretary of the Army, Secretary of Defense, and to the White House.

If the 10% rule is waived in favor of Westinghouse, the agencies making the recommendation have to explain their reasoning to the President in writing.

•

The housecleaning aftermath to the housing scandals may bar a lot of firms from getting future FHA loans. Seven firms thus far have been barred by FHA Commissioner Norman Mason, and officials say "hundreds" of others are likely to suffer the same punishment.

Present law permits Mason to cut off firms he feels have been improperly profiting from FHA business. Mason based his decisions primarily on evidence brought out at the congressional hearings.

•

Administration backing of a change in the "eight hour law" puts it on the "probable" list of legislation for this session of Congress. The Budget Bureau has put its approval on it, following Labor Secretary Mitchell's recommendation. The change would require contractors to pay time-and-a-half after 40 hours of work. The old law required overtime only if a man worked more than eight hours a day, giving some managements the advantage of getting up to 56 hours of work a week at straight time.

•

A drive for 100% federal financing of the Delaware River channel deepening is building up in Congress, despite President Eisenhower's contention that there should be local "participation." It has the backing of powerful Republicans, and Democrats as well. Bills authorizing $25 million to start construction have been introduced. They'll have bipartisan support from the Delaware region. The argument centers around whether U. S. Steel, or at least local governing bodies, should pay the costs, a "partnership" concept Eisenhower has developed for western dam building.

Eisenhower said they should—by tolls, or some other way. He put a $6 million figure in the budget, but tying it to local participation.

The port of Philadelphia and local interests say no. And they have the advantage of congressional logrolling to support their side. They can trade their votes on other Corps of Engineers projects, in turn for votes for the $90-million-plus Delaware deepening. Eisenhower could veto, of course, but that would be politically difficult.

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Panel on public works before the Congressional Committee on the President's Economic Report was unanimous in saying . . .

U.S. Must Boost Public Works Construction

A new attitude toward public works construction as a bulwark of the nation's economy is gaining strength in Washington and throughout the U. S. This new thinking was brought out clearly last week in the day-long testimony of a panel of construction experts before the Joint Congressional Committee on the President's Economic Report.

The panel—almost without exception—hammered away on this theme: Don't count on public works construction to halt a depression once one is under way. Instead, let's maintain public works spending at a steady, high rate to avoid a depression and to supply the facilities the growing American population needs.

The panel included experts in every phase of public construction: highways, schools, housing, slum clearance, hospitals and water resources. The emphasis throughout was on the need for expansion to meet growing needs.

The committee will not report any of its conclusions in the form of recommended legislation. But it will produce a report analyzing the Administration's economic policies. In general, it will be strongly on the side of more spending for public works.

Sen. Barry Goldwater of Arizona, a conservative Republican, summed up the doubts of witnesses and committee members about the effectiveness of public works as a cure for a depression, once one is under way.

"How much can we really do with this approach?" he asked the panel of construction spokesman. "It's not fair to fool the public by saying, 'Don't worry about a depression, the federal government will step in and cure it,' if we really can't."

Panel members had laid the groundwork for Goldwater's comment by stressing the time-lag between ordering a public works project, and its actual construction start. Brig. Gen. E. C. Itschner, assistant chief of Army Engineers, said the Corps of Engineers had a backlog of $8.9 billion of projects, some of them approved by Congress six years ago but still not ready for construction.

Prof. William L. C. Wheaton of the University of Pennsylvania, a city planning expert, said it took about five years to get an urban redevelopment project to the construction stage. "What we need is a going program to meet needs," Wheaton argued. "We shouldn't hold back to meet some emergency in the future."

The only panel member to defend public works as a quick anti-depression device was Joseph L. Fisher, associate director of Resources for the Future, Inc. And even his defense was a limited one.

"I agree with the new emphasis on continuing programs," Fisher said. "But there are some projects that can be started in as little as three months if plans are ready." He cited channel dredging, streets, additions to schools and other public buildings.

Here's what members of the construction panel told the committee about the need for various types of public works and how their construction should be handled.

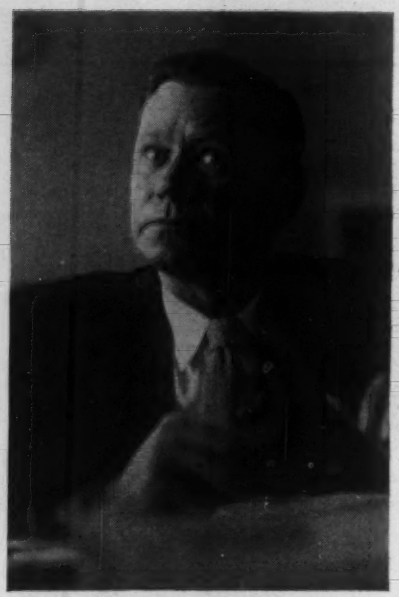
● Highways

Dewitt C. Greer, Texas State Highway Engineer, spoke for roads. He favored a continuation of the present system of federal grants, stepped up to 75% for interstate roads, "in order that a priority in this system might be purchased by the federal government, due to the interstate and military characteristics of this particular system."

On questioning by Sen. Paul Douglas, committee chairman, Greer made it plain that he wanted states to continue as the contracting agencies, as under the present matching-fund program.

Sen. Douglas wanted to know if this were not a case of the tail wagging the dog. "States like to come for money but always want to control its spending," he said.

Greer argued that he merely wanted



DEWITT C. GREER urged more federal money for roads.

states to have the same power under a 75-25 matching fund ratio as they have under the present 60-40 ratio. He was supported in his position by Rep. Wright Patman, a Texas Democrat.

"Federal road authorities would have the veto power over plans prepared in the states as they do now," Rep. Patman said. "There would be no cause for alarm."

● Schools

William G. Carr, executive secretary of the National Education Assn., outlined a $32.4-billion school construction program based on 10-year needs.

Carr's estimate of needed school construction was broken down like this:

- To catch up with requirements of the present school-age population: 312,000 classrooms at $30,000 per room—$10.6 billion.
- To replace obsolescent schools—$7.5 billion.
- To meet the needs of a substantially future school-age population—$14.3 billion.

Rep. Henry O. Talle, Iowa Republican, raised the inevitable question: Who is going to pay for this expansion?

"School districts and states in many cases are already bonded to their legal limits," he said. "The federal government is close to its debt limit under the present law. Is this a case of somebody having to puncture existing debt ceilings—either local units, or the federal government?"

Carr defended federal money for school construction, without stirring up any opposition from committee members, probably because the Eisenhower message on school needs is due any day.

Sen. Goldwater offered a prediction: "I have seen the President's program for schools. When it is offered, the whole country will rally around it."

● Housing

Prof. Wheaton recommended easier credit terms for middle-income families buying houses and greatly stepped-up public housing for low-income groups—in direct contradiction of warnings from Administration officials that the housing boom may be getting out of hand.

"The experts have always underestimated the natural market for new housing," Wheaton told Rep. Thomas B. Curtis, Missouri Republican, who brought up the Administration warnings.

"One of the shames of this country is that a steady worker with a good job in a typical U. S. factory, cannot afford to buy a new house," Wheaton said. He cited a Philadelphia study: the average family has $3,700 income; it can afford to pay no more than $7,400 for a house; the lowest priced home being offered is a little under $10,000.

The solution according to Wheaton is lower credit costs for middle-income families, accomplished through established federal agencies, with private builders doing the construction. He said there is a market for 200,000 to 400,000 additional new homes a year in this middle-income bracket, particularly among Negroes and in rural, but non-farm, areas.

"Housing for millions of American middle-income families constitutes the only completely self-liquidating public works program that I know of," he summed up.

For low-income families, Wheaton recommended 200,000 units a year, to be built under the Public Housing Act of 1949. This compared with 35,000 units recommended by Eisenhower for each of the next two fiscal years.

"In my opinion it is factually inaccurate and morally deceptive to claim . . . that private builders can meet low-income housing needs. They never have, they cannot today and they will not in the foreseeable future," he said.

● Slum Clearance

William Zeckendorf, president of Webb and Knapp, Inc., turned out to be one of the day's star performers. He started with an assist from Wheaton, who told the committee:

"Slums are still gaining on us at a rate of more than 2 to 1. We clear less than 100,000 slum dwellings annually. From 200,000 to 500,000 units enter the slum category each year. We're losing the slum race."

Zeckendorf was the only panel member with a recommendation that did not call for either new legislation or more federal funds. He believes the urban redevelopment legislation of 1954 is ample. If cities act vigorously under it, he said, private capital will undertake slum clearance on a big scale.

He urged this basic approach to redevelopment: A city should acquire, through the right of emminent domain, more land than is actually needed for the development in mind. Then the extra land, which gains value from the improvement, can be re-sold at prices that will bring back the cost of the project.

"This will assure present property owners a fair price, through condemnation, but it denies them windfall profits from an improvement which the community as a whole is responsible for," Zeckendorf said.

● Water and Power

This always-boiling issue brought the sharpest conflict of views. Fred G. Aandahl, Assistant Secretary of the Interior, led off for the Administration. He defended the partnership principle of power development, said it would supply the country's power needs without risking federal domination. He stressed that the Administration was recommending immediate action on the Colorado River storage project and the Frying Pan-Arkansas project.

"Is it true that you have a big

FRED G. Aandahl asked larger reclamation planning funds.

LELAND OLDS called for stepped-up federal power construction.

backlog of reclamation projects for which money has been appropriated and not spent?" Rep. Curtis wanted to know.

"On the contrary, we have fewer than I personally think wise," Aandahl replied. He pointed out that the President has recommended a $5-million increase in reclammation funds for advance planning.

Gen. Itschner said the Corps of Engineers was asking for a similar amount to bring additional projects to the construction stage. The testimony of these two officials indicated that a gradually rising interest in water projects could be expected from the Eisenhower Administration in the next two years.

To Leland Olds, former chairman of the Federal Power Commission and an old war horse among public power backers, all this was dangerously inadequate. He charged that the partnership approach would leave the country short of power needs as early as next year. He urged all-out federal construction. Another witness, president Roland R. Renne of Montana State College also was critical in his views of the present Administration's power policies.

• Hospitals

Charles B. Larence Jr., program chief for the Department of Health, Education and Welfare, posted a big hospital construction potential.

He told the committee that $1.7 billion a year would be needed over the next 10 years to meet fully the current backlog of needs and to care for the increasing population. This compares to the $685 million that was spent for hospital construction during 1954.

Inland Florida Pike Favored

Turnpike Authority suggests governor recommend 276-mi, $207-million route; 'bob-tail' project bonds get approval

The Florida Turnpike Authority prefers that the state's proposed full-length toll road run inland instead of along the coast and has recommended a $207-million, 276-mi route to Gov. Leroy Collins.

It is now up to the governor to make his recommendation to the state legislature, which is scheduled to convene in April.

Meanwhile, the already authorized "bob-tail" turnpike, from Hollywood in the Miami area to Ft. Pierce, won approval of its $74-million bond issue. The bond validation proceedings now go to the State Supreme Court, with final action expected promptly. Plans for this 103-mi stretch are already being drawn.

The inland route, recommended by the Turnpike Authority, would run northwest from Fort Pierce to a point near Kissimmee, then swing north to near Orlando. It would connect with U. S. 17 about two miles below the Georgia line.

The authority recently signed a formal contract with Howard, Needles, Tammen & Bergendorf, Kansas City consulting engineers, to serve as consultants on the 103-mi Hollywood-Fort Pierce Turnpike at a fee of 1¾% of actual construction costs. The firm agreed to reduce this to 1½% if it received the contract for the state-long turnpike.

The Needles firm came into the picture with a change of turnpike authorities precipiated by Florida's turblent politics of the past year. Parsons, Brinkerhoff, Hall & Macdonald had been the consultants for the project. Now, this firm has agreed to terminate its contract but has claimed a $221,375 termination payment.

The consulting engineers had told the Turnpike Authority that either the inland or coastal route would fit into the ambitious interstate system expansion plans envisioned under President Eisenhower's highway program.

According to Sam Turnbull, chief engineer of the Turnpike Authority, it is felt that the inland route would be of more general benefit to the state. Still another point that weighed heavily in favor of the inland route was that it would be in a better position to connect with a proposed route south from the Chicago area to the Georgia line.

Jacksonville interests opposed the inland route, fearing it would detract from the earning power of the $60-million Jacksonville Expressway.

The coastal turnpike route from Fort Pierce to the Jacksonville Expressway would be 201 mi long and cost an estimated $148 million, as compared to the inland route of 276 mi and $207 million.

Canada's Seaway Authority To Ask Bids on Four Jobs

Canada's St. Lawrence Seaway Authority will call for bids on four more major Seaway contracts this month.

Lionel Chevrier, president of the authority, announced that the jobs to be let will cover construction of locks and excavation of the Seaway channel in the Lachine area, near Montreal; work in the International Rapids section of the river; and dredging in the Lake St. Francis section, near Montreal.

Chevrier said the Canadian government had not yet decided whether the present 14-ft navigation channels along the Seaway will be replaced with 27-ft or with 30-ft channels after the Seaway is completed. The present channels must be maintained during the shipping season while work on the Seaway is in progress.

Engineer Report Rules Out Bridge Across Hood Canal

The Washington State Toll Bridge Authority has been informed by the New York engineering firm of W. C. Gilman & Co. that a proposed $22-million bridge across Hood Canal on the Olympic Peninsula is not financially feasible at this time.

Tolls equal to ferry fares on the Lofall-South Point run could not finance the bridge itself, to say nothing of the $9 million in ferry bonds which would have to be retired, the engineers declared.

The bridge has been mentioned in connection with a $100-million project for bridging Puget Sound, which separates Seattle from the Olympic Peninsula. A report on financial feasibility of the sound bridge is expected soon.

Proponents of the canal bridge are supporting bills now before the state legislature which would guarantee interest on bonds for the bridge and permit the bridge to draw on ferry earnings in the state, thus making it financially feasible.

Pollution Control

Congress asked to extend water standards measure and aid attack on smog

Legislation to give permanence to the Federal Water Pollution Control Act, due to expire June 30, 1956, was introduced in Congress last week.

And, in another move inspired by the President's recent congressional message on health, the Department of Health, Education and Welfare announced a stepped-up air pollution control program.

The new water pollution control legislation would vest a little more authority in the federal government. But primary responsibility would still rest with the states under the Administration-backed bill introduced by Sen. Edward Martin, R., of Penn.

Specifically the act would authorize the Surgeon-General to develop, publish and enforce standards of water quality for a river at the point where it flows across a state boundary. However, the federal government would issue these standards only if the affected states failed to come up with criteria acceptable to the Surgeon-General.

The new amendment also eliminates several steps in the involved compliance procedure that the Surgeon-General has to go through to bring an abatement suit in federal courts. The Surgeon-General's office feels that prospect of faster court action may induce faster compliance after a plant has been notified that an unsatisfactory pollution condition exists. Officials in the Surgeon-General's office say that while no enforcement suit has ever gone to court—they have had success in getting pollution reduced merely by serving notice on offenders.

Hearing would have to be held before an order could be handed down against a plant. The federal government could not bring suit without the consent of the state in which the plant is located.

The amended act would provide for $2 million a year for two years in grants to the states and after that Congress would determine the amount to be appropriated. The states would use the grants for meeting costs, under approved plans, of setting up control measures, including the cost of training personnel and administering state or interstate agency plans.

To fight air pollution, the Administration has increased budget requests by $412,500 over what was available last session. This total of $594,000 would provide primarily for Public Health Service research. An additional $23,000 is being asked for an international study in the Detroit-Windsor, Canada, area, and $125,000 for non-categorical research grant funds.

HEW Secretary Oveta Culp Hobby announced that much of the air pollution control research will be concentrated in the Los Angeles area where smog has presented one of the most baffling air pollution problems in recent times.

California senators—William Knowland and Thomas Kuchel—plan to join with Sen. Martin of Pennsylvania in calling for limited accelerated depreciation for both air and water pollution control facilities built by industry. This type legislation has gotten no where in the past and the Treasury now opposes it because of potential loss of revenue, but Martin, a member of the Senate Finance Committee, will push the measure.

Committee Prefers Pittsburgh For Engineering Headquarters

A committee composed of the immediate past presidents of the four Founder Societies, plus the American Institute of Chemical Engineers, has recommended that Pittsburgh be chosen as the site of a new headquarters building to replace the one in New York that is now outgrown.

The recommendation was contained in a report to the governing boards of the organizations. The committee had been appointed at the suggestion of United Engineering Trustees, which owns and operates the present headquarters as representative of the Founder Societies.

The UET, made up of three members from each of the four Founder Societies had previously gone on record as favoring a new building in New York on a site near Columbus Circle. The so-called "Presidents Committee" rejected that site as it did others which had been considered in Chicago. It did not mention a site which has recently been preferred by Philadelphia, nor those which had been proposed in Washington.

The committee based its preference for Pittsburgh on what it termed "lowest capital cost and lowest annual expenditure."

In an additional surprise move, the committee also recommended that "the four Founder Societies liquidate the United Engineering Trustees and join the American Institute of Chemical Engineers in the formation of a new corporation to build, operate and maintain the new engineering center." The committee, under the chairmanship of Elgin B. Robertson of the AIEE, included Daniel V. Terrell, ASCE; Lewis K. Sillcox, ASME; Leo F. Reinartz, AIME; and Chalmer G. Kirkbride, AIChE.

Federal School Aid

President submits plan that is sure to stir up Democratic opposition

President Eisenhower this week took a stand on federal aid for school construction that is likely to stir up a lot of opposition from Democrats in Congress and school authorities.

The President sent to Congress a special message which differed fundamentally from the Democratic approach. Democrats have urged a two-year emergency plan to give $500 million a year in grants to the states.

But the main points of the President's program were these:

- The President insists that the problem of financing school construction is still primarily one for the states and the various localities—not the federal government.
- The federal government's main role is that of guaranteeing and insuring school bonds issued by states, counties, and other jurisdictions that finance school construction. The federal government also will help sell the bonds and lend technical assistance.
- The federal government will do whatever it can to help the states set up authorities to issue school bonds. Such authorities also would get the backing of the federal government.
- The President offers grants only to "pauper" districts—that is, those who come in and prove that they are really desperate, and that they have exhausted their own ability to issue bonds or to raise taxes.

In general, the President's proposals are directly contrary to the approach the Democrats have been selling and selling hard in Congress. What he proposes is a "permanent program" for schools—an approach which he thinks is one that should be pursued from here on out. It is direct repudiation of the whole Democratic thesis that what's needed now is emergency help—dollars parceled out of the federal Treasury to the communities to get classrooms built.

Eisenhower says that states and localities can get help immediately under his program, too.

Sen. Lister Hill, chairman of the Senate Labor Committee, immediately scheduled hearings on the President's proposals but said he still planned to push hard for his own proposal for federal grants beginning this year.

One big question raised by the President's school message is the extent to which he can attract Senate Republicans to his program. Many GOP senators last year came out for a program of emergency grants similar to those proposed by Sen. Hill.

An ENR survey shows . . . .

How to Slash School Construction Costs

School construction is due for a big boost—whether along the lines laid down by the President in his message to Congress (see page 24) or by means of a program being pushed by the Democrats.

But, even if they get more financial assistance, state and local school authorities will still be confronted with the frustrating problem of how to stretch the school building dollar to get the needed classrooms.

An ENR survey of U. S. architects and educators shows that the postwar trend toward simple, efficient design has trimmed a lot of fat from school costs. But it indicates, too, that there are still plenty of opportunities for cutting costs.

Replies to the questions posed by ENR make this point quite clearly: Enough small savings can be made to add up to a substantial narrowing of the gap between the cost of urgently needed classrooms and the funds available to pay for them.

• **City vs. rural schools**—The ENR survey also points up the differing problems of urban, and rural and suburban areas. In cities, sites generally are scarce and costly. Therefore, multi-story buildings are more economical than one-story. When it comes to building design, cities are slower than the suburbs in adopting innovations leading to lower costs, such as multi-purpose rooms, unplastered walls, exposed beams.

Of course, the cities may have good reason for not adopting these economical constructions. Multi-purpose rooms, for example, are not used more often for schools in areas with high population density because these schools must be designed for large numbers of pupils. Thus, it is more economical to set aside rooms for single, special purposes, since there are enough students to keep those facilities in use nearly all the time. As for items like unplastered walls and exposed beams, fireproofing requirements for the multi-story building generally preferred in cities, and pressure from certain labor unions generally stand in the way.

In suburban and rural areas, however, leading architects point out, multi-purpose rooms offer some opportunities for cutting costs. Auditorium gymnasium or entrance lobby may sometimes be combined to advantage with cafeterias. Corridors may serve also as play space. Part of an auditorium may be used as a music room.

Multi-purpose rooms are just one of many means of reducing the amount of space required per student. The most obvious possibility—decreasing the size of classrooms—is ruled out by nearly all the architects and educators interviewed. They believe that reducing the minimum floor area per pupil (usually about 30 sq ft) would hamper modern teaching methods.

Nor do they believe that much can be saved by cutting down on corridor space, except in the South where corridors need not be enclosed. On the other hand, some architects called attention to the possibility of saving money by centralizing toilet facilities.

• **Savings by height reduction**—The biggest opportunity to save money, most thought, was to lower ceiling heights. Many communities have authorized reductions from a once popular floor-to-ceiling height of 12 ft or more to about 10 ft. This cuts exterior wall, window, partition and piping costs.

Of course, there is a practical limit to the amount ceiling heights may be lowered. But whether 10 ft is the limit or whether some lower value is workable, perhaps in conjunction with supplemental lighting from clerestory windows or skylights, the architects could not agree.

Architects and educators were almost unamimous in opposing use of substitute equipment just for the sake of cutting initial costs. They pointed out that students are rough on both equipment and interior building finishes; maintenance and repair costs as well as first cost must be taken into account.

Most architects prefer one-story schools where large enough sites are available at reasonable costs. They find they can make some savings because they can use less expensive materials than for multi-story buildings and because fireproofing requirements are not as stringent. Furthermore, they can eliminate stairways and cut down on corridor space. There is also some indication that the drive for economy may result in the elimination of full basements.

Architects called attention to the savings possible by reducing the amount of exterior wall needed. One way to do this is to make buildings circular or square, rather than rectangular or irregularly shaped. Also classrooms might be made rectangular, with the small end along the building exterior, but with some sacrifice of daylight at the far end of the rooms. And another way is to reduce story heights.

Under certain circumstances, architects said, demountable or portable schools might save a community money, though most educators fear that temporary schools might never be replaced. In Miami, for example, portable schools are used to establish a school center while permanent facilities are being constructed and are removed as soon as possible. In some other parts of the country, temporary school buildings have later been converted into housing. But in some cities, temporary schools built right after World War I are still in use.

A sizable number of the architects favored concrete block for wall construction as an economy measure. Most try to omit plaster. For decorative treatment, they advise principally reliance on color and texture; monumental-type schools appear to be on the way out. However, local school boards sometimes have their own ideas on architecture. One architect, for example, told how his school board, after paring costs to the bone, insisted on adding a steeple with a clock to the school building.

• **Multi-purpose materials**—Many of the architects who favored one-story schools also preferred to leave beams exposed below the ceiling. One suggested as an economy measure use of glass-fiber form board on which a gypsum roof deck can be placed. The form board is left in place as both thermal and acoustic insulation. For beams, they preferred open-web steel joists because of low cost and because utilities can be passed through them easily.

For ventilating school buildings, some architects favored natural ventilation. Others recommended forced-draft, particularly in combination with a heating unit in each classroom.

One architect suggested that population studies should be made and the school plant designed for an estimated life based on the population trend observed. Attention also was called to the possibility of saving money through greater competition between contractors in bidding for the construction. This could be done by wise timing of bidding.

By combining projects, economy also can be achieved by enabling contractors to make multiple use of equipment and take advantage of duplication of building materials.

MOLES AWARDS for 1955 went to Carl Jansen and Thomas J. Walsh. Left to right: G. F. Ferris, Moles president; Jansen; R. L. Hearn; Walsh; Adm. Ben. Moreell, who made the presentation to Walsh; and E. G. Johnson, award chairman.

Joint Ventures Questioned

Attacking a subject close to the hearts of many in his audience, Carl Jansen, president of Dravo Corp., Pittsburgh, last week called joint-venture contracting a "habit," and suggested that it is inimical to the industry's best interests.

Jansen's warning came as he accepted the 1955 Moles non-member award "for service to construction" at the annual award dinner of the Moles, New York association of tunneling and heavy construction men. Member-award winner was Thomas J. Walsh, chairman of Walsh Construction Co., Davenport, Iowa. Principal speaker was Richard L. Hearn, chairman of the Hydro-Electric Power Commission of Ontario.

Highlight of the Hearn talk was his announcement that the Canadian share of power from the St. Lawrence Power project—the last major hydropower source available in Ontario—would be fully in use by 1962. Before then, Ontario will have to seek other power sources. Hearn also paid tribute to the work of many contractors currently engaged on power projects along the international boundary. The Walsh firm worked with Ontario Hydro on its Sir Adam Beck No. 2 development at Niagara Falls, now substantially complete, and Dravo is now at work as the first major contractor on the New York portion of St. Lawrence Power.

The Dravo president led up to his challenge on joint ventures by lauding the industry's tradition of individualism. "The heavy construction industry is, in my opinion, the purest example of our free-enterprise system at its best. As contractors, we undertake to perform completely planned projects at a fixed price, putting our wits against our competitors as to what that price shall be." He cited pride of accomplishment as the greatest incentive for contracting in the traditional spirit of competition.

Jansen then asked his audience to give serious thought to the question of whether the ever-increasing joint-venture philosophy is "truly compatible with this pride of accomplishment, this competitive spirit. . . ." He acknowledged that joint ventures are properly undertaken in two cases: Where resource-pooling is necessary for work beyond one contractor's capacity; and on certain "cold war" military projects of major size, where an individual contractor should not be expected to place his entire facilities at the disposal of the government.

"But today's trend toward this method goes far beyond these basic problems," Jansen said. "Joint venturing is rapidly becoming a 'way of life' for our industry, and I seriously question both the validity of purpose and the ultimate consequences.

"Does the public, and the customer, draw the proper conclusion in assuming, as many now do, that most of these combinations are to reduce competition?

"As joint venturing increases in popularity among contractors, are we not committing a form of slow suicide, by emasculating the major asset of our industry—our rugged individualism and much-vaunted competitive spirit?"

M. N. Baker Dies

Sanitary engineer spent 45 years with ENR as water supply specialist

M. N. Baker, retired Associate Editor of ENGINEERING NEWS-RECORD, died at his home in Upper Montclair, N. J., on Feb. 6 at the age of 91. At the time of his retirement in 1932, Mr. Baker had completed 45 years of editorial activity with this journal.

Editor, sanitary engineer and public official, Moses Nelson Baker devoted a lifetime of service to the engineering phases of public health, particularly in relation to water supply. His unflagging interest in the subject continued after his retirement in the compilation of a reference work titled "The Quest for Pure Water," a history of water purification practices from the beginnings of the human race, which was published by the American Water Works Assn. in 1948.

Following graduation from the University of Vermont in 1886, Mr. Baker worked as a draftsman in the Idaho Division of the Union Pacific Railroad and a year later joined the staff of Engineering News. Among his editorial duties was the compilation of the pioneer "Manual of American Waterworks," which appeared annually for a number of years and was of fundamental value in making definite information available about the rapidly developing practice of municipal water service. Partly as a result of this work he made water filtration, and in fact all related questions of the safeguarding of water quality, his special field of study.

In his subsequent editorial career, which continued until his retirement from active practice in 1932, he gave close study to many other phases of public sanitation, both in this country and abroad. In 1904, following a European tour, he published a book on British sewage and refuse disposal practice.

Mr. Baker's contributions to public service also deserve to be remembered. As a young man he was elected to the Montclair Township Committee, soon afterward was named as one of the five original members of the board of health, and served on that board for more than 20 years, 10 of them as president. Later he also served on the New Jersey State Board of Health.

Mr. Baker was an honorary member of the American Water Works Assn. He was also a member of the New England Water Works Assn., the American Public Health Assn., the National Municipal League, and the New Jersey Sanitary Assn.

Iroquois Lock

Canada rushes project in hopes U. S. will postpone parallel Seaway facility

Canada is moving swiftly to get construction under way on a canal and lock at Iroquois, Ontario, where the international agreement on the St. Lawrence Seaway permits Canada and the United States to build parallel facilities on the two sides of the river.

Lionel Chevrier, chairman of the Canadian St. Lawrence Seaway Authority, has announced receipt of a low bid of $6.5 million for the job. He said that construction will begin immediately with work to be completed by November 1957. Canadian officials were reported eager to get the job started in the hope that the U. S. would postpone the American project for duplicating facilities on the other side of the river, at least until traffic warrants a parallel waterway.

Lowest of 11 bidders for the job was a combine of Pentagon Construction Co. of Montreal and Iroquois Constructors, Ltd., a joint venture of four leading Canadian contractors—Foundation Company of Canada, Ltd., Angus Robertson and Co., Canadian Comstock Co., and Raymer and Armstrong, Ltd.

The lock will be 768 ft long and 80 ft wide with a depth of 30 ft and an approach channel depth of 27 ft at all stages of the river. The canal and lock will be constructed in the center of the island where the town of Iroquois now stands. The south end of the canal lock walls will connect with the end of the control dam which must be built at that point.

The existing 14-ft canal, running between the island and the mainland, will continue to be used until the new works are complete. Then, excavation stockpiled at the new project will be used to fill up the old canal prism and form industrially valuable land.

Grand Jury Investigates Miami's Port Authority

A Miami, Fla., grand jury is probing the affairs of the Dade County Port Authority which recently dismissed Port Director A. B. Curry, a civil engineer, from his $25,000 a year job.

The grand jury began its investigation after the five-man port authority issued a statement saying Curry had been dismissed when the authority learned he had been paid $1,333.33 a month for 19 months by the Rader Engineering Co., consultants to the authority.

Rader Engineering Co. and Curry both acknowledged that Curry had been on a retainer from the engineering firm. Rader said Curry had been employed "to work in his spare time in consulting with us and in helping us get jobs," with it being specifically provided that the agreement wouldn't include any work for the port authority.

I. D. MacVicar, chairman of the port authority, said the statement explaining why Curry was dismissed was made "because the board has been getting considerable abuse for dismissing Curry and felt the public should be informed of the full story."

N. J. Legislature Authorizes 14-Mile Turnpike Extension

The New Jersey legislature has passed and sent to Gov. Meyner a bill authorizing construction of a short but important extension of the New Jersey Turnpike.

The proposed extension would run from U.S. 22 at Somerville to the turnpike interchange at New Brunswick. It would give motorists an opportunity to by-pass the congested area of U.S. 22 between Somerville and Newark where it now connects with the turnpike.

The bill also authorizes continuation of the new construction about seven miles to a connection with the Garden State Parkway in South Amboy if traffic studies indicate that the cost would be financed by tolls.

A total of 24,705,851 vehicles moved over the turnpike in 1954, a daily average of 67,687, the New Jersey Turnpike Authority announced. The 1954 daily average compares with the traffic estimate of 27,700 vehicles during 1954 when the turnpike was being studied. The current volume was not expected until 1981.

Revenues from tolls in 1954 amounted to $20.8 million. Income from service area facilities brought the total to $23.2 million. Accident and fatality rates on the turnpike set a new low record in 1954. The accident rate was 59.2 per 100 million miles of vehicle travel; and the fatality rate was 2.47 per 100 million miles as compared with 6.2 for the nation as a whole.

Channel to New Orleans

Legislation to authorize construction of a tidewater channel from New Orleans southeastward to the Gulf of Mexico has been introduced in Congress by two Louisiana congressmen. The project would provide a water route from New Orleans to the Gulf shorter than the Mississippi River channel now used. Army Engineers estimated cost to be $71 million.

"Windfall" Profits

Government balked on tax levy but can still attempt to recoup loan excesses

A tax court decision has frustrated the federal government's attempt to get the maximum tax benefit out of "windfall" profits made from FHA-financed apartment house projects.

The "windfall" profits were properly taxed as long-term capital gains, rather than as ordinary income, the U. S. Tax Court ruled last week. Unless reversed on appeal, the test case ruling apparently bars similar proceedings against postwar housing developers that might have yielded up to $750 million in tax revenue.

At issue was money distributed to stockholders from an excess of FHA-insured mortgage loans over actual construction costs. The court noted that the practice responsible for the "windfall" profits was being questioned elsewhere but that its consideration of the matter was "limited solely to the interpretation of the tax statutes presently applicable to the stipulated facts."

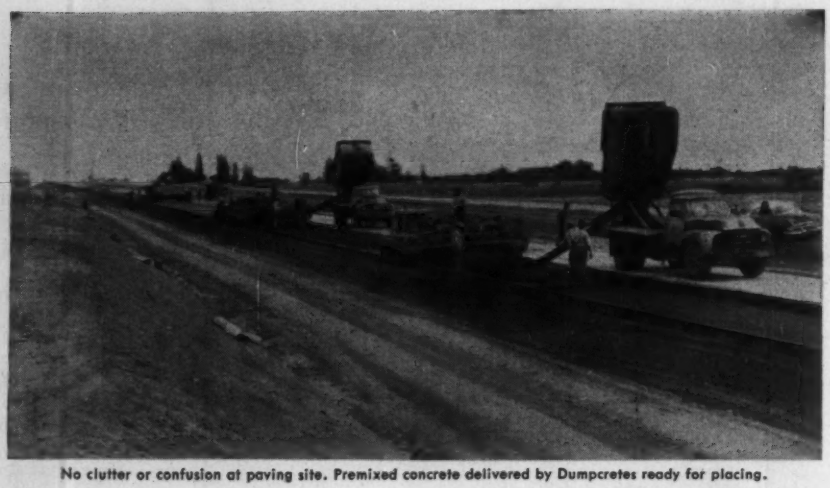
Involved in the test case were the Gross-Morton interests, builders and operators of Glen Oaks Village in Queens, N. Y. and the Mars Home Development in Baltimore, Md. The two projects were financed by loans totaling about $24 million, whereas actual construction costs amounted to around $20 million. This $4-million difference, plus $2 million from connected projects, represented the profits.

The ruling drew immediate congressional comment. Sen. Harry F. Byrd, who used the Gross-Morton case to touch off the housing investigations last year, said he "could not quarrel with the court's ruling very much." Byrd sponsored the tax code amendment, designed to close a loophole in the law, that permitted application of the capital gains principle in this case.

Sen. Homer Capehart (R.-Ind.) lashed out at the Democrats, saying he would ask for money to continue the housing scandal investigations if the Democrats do not.

The Gross-Morton decision can be appealed by the government within 90 days. However, despite the importance of the ruling, Washington experts doubt the decision would be reversed if it ever is appealed.

Meanwhile, FHA will continue to try to recover excess mortgage proceeds on the grounds that they were appropriated in violation of the corporate charters of the firms that sponsored Section 608 multi-family housing projects.



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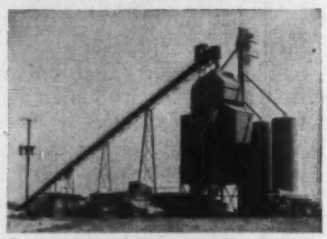

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CITY BY CITY

Off-Street Parking Setback

San Francisco—The San Francisco Parking Authority will have to revaluate its $18.5-million off-street parking program as a result of a California Supreme Court ruling that blocks its plan for working with private interests to obtain needed facilities.

The court ruled that the city cannot acquire property through condemnation for the proposed 900-car Ellis-O'Farrell Garage because it would not control rates charged by private operators of the garage.

The authority had planned to turn over the property to the highest bidder, who would erect a garage and return a portion of the revenues to the city.

The decision held that another feature of the plan—incorporating retail stores in the garage—is not enough to invalidate the scheme but does aid in characterizing the whole operation as a private one for private gain.

The high court decision upheld an earlier one by the State Court of Appeals. The legality test for certain features of the Elliss-O'Farrell plan was set in motion when the city filed suit to force Controller Harry D. Ross to certify Parking Authority funds for condemnation and clearing of the site.

Port Authority Under Fire

New York City—The City Controller has accused the Port of New York Authority of failing in its promise to make first-class terminals of La Guardia Airport and the International Airport at Idlewild.

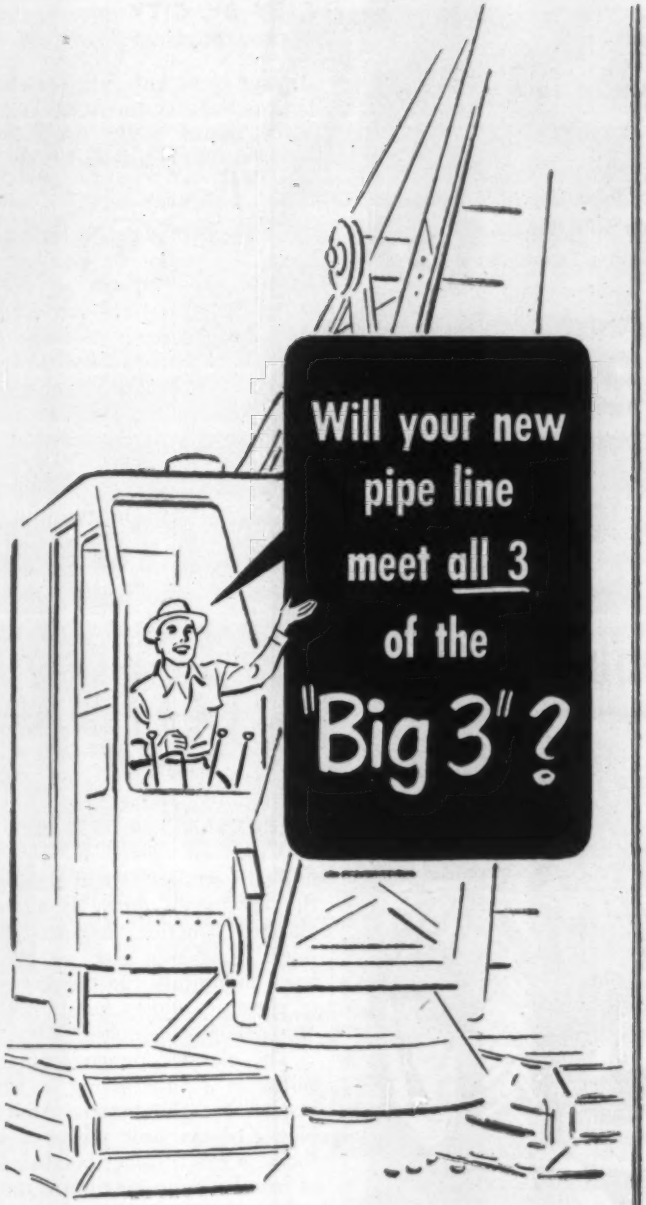
The bi-state (N. Y.-N. J.) agency operates both airports under a lease from the city.

The Port Authority, denying the charges, disclosed that it plans a $50-million improvement program to give Idlewild "the greatest terminal facilities in the world."

Details of the plan will be made public within 30 days. But the Idlewild improvement program reportedly includes a $44.3-million permanent passenger terminal, a $5.1-million runway extension, and a $4-million air cargo terminal. Another $5.7 million would be spent for rehabilitating La Guardia.

The controller, in a report to the Board of Estimate, charged that under a 1947 contract with the city the authority agreed to spend $100 million on Idlewild and La Guardia but actu-

(*Continued on page 30*)



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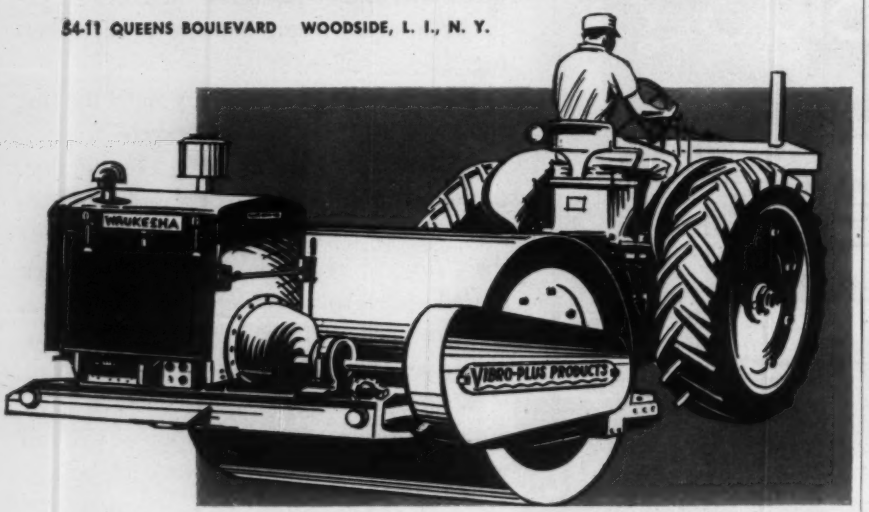

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ally has spent only 54% of that sum. He put the investment for general airport purposes at the two facilities at $53,196,466, based on 1947 construction costs.

The authority reports that since it made the contract with the city it has spent $72 million for La Guardia and Idewild improvements. It notes that when the agreement was made Idlewild was not open to traffic and its terminal facilities consisted of a small cinder block building housing a control tower. Since 1948 air passenger traffic has grown from zero to some 2.9 million.

The New York City official also charged the Port Authority with expediting work at Newark and Teterboro Airports in New Jersey "at the expense of future loss of business at the city's airports."

Motel on Stilts

New Orleans—Tulane Development Co. has come up with a new way to help solve a city's parking problem—a motel built on stilts.

The $2-million, 150-room motel de Ville, just opened in New Orleans' mid-city section (about 1¼ mi from the downtown area), is a two-story elevated structure supported by steel piles. Cars can park on the street level underneath the building. A pair of elevators whisks guests upstairs to either floor.

The elevated design reportedly resulted in a 50% saving in land area needed for the motel. And if this New Orleans unit proves a success, the firm will consider building a string of similar near-downtown motels in other cities.

Crackdown on Construction

Los Angeles—Mayor Norris Poulson has initiated a crackdown on new residential construction that might add to the city's acute sewage disposal problem.

He has asked the City Planning Commission to withhold approval of new subdivisions and tract zoning until April 5, when there will be a vote on a $60-million bond issue for enlarging sewage lines and increasing the capacity of the Hyperion sewage treatment plant. After that date, the mayor suggested, the commission could base its action on the outcome of the election.

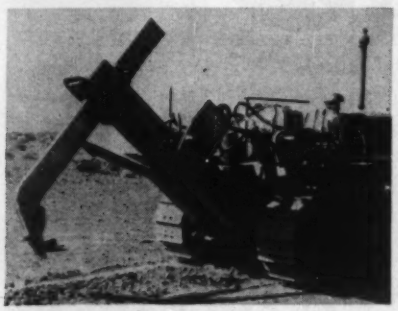
He also has asked the Building and Safety commissioners to withhold building permits on construction already authorized by the Planning Department.

(*Continued on page 32*)

This photo group shows: right, a newly fabricated ripper tooth boot (back side) welded from mild steel plate; center, hard-faced with stringer beads of Coated Tube Stoodite, and left, front side of worn boot after 3 days' service.

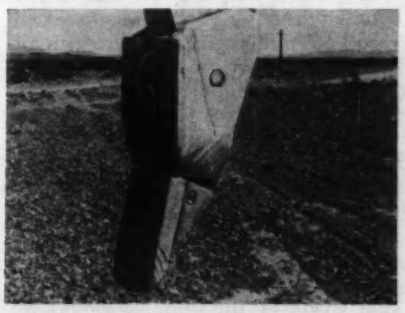
HARD-FACED RIPPER TOOTH
Lasts 1200% Longer on Desert Duty!

Near Ludlow, California, PG&E is spanning the vast Mojave Desert with a gas pipeline. To ease the trenching job a gigantic ripper is towed by a D7 tractor ahead of the ditcher. Its purpose is to break up the hard-packed earth and locate the frequent sub-surface lava flows. This lava is so hard and tightly bonded that explosives must be used to break up the formation.



Depth at which ripper operates is evident by length of standard.

The ripper on this job is designed for easy maintenance; boot type point and adapter are replaceable. The points are fabricated from mild steel plate in the



Close-up shows point attached to tooth adapter. Entire tooth is hard-faced with Coated Tube Stoodite.

division headquarters maintenance shop of the pipeline company handling the job, Engineers Limited Pipeline Co., Bakersfield, California. All four sides are hard-faced with Coated Tube Stoodite before being placed in service.

Working deep in the highly abrasive earth, unprotected boots last only 2 hours. When hard-faced with Coated Tube Stoodite this short life is extended to three full days—an increase of 1200%.

Coated Tube Stoodite is a recent Stoody development for manual application, combining high wear resistance, good impact strength, fast deposition and low cost. Ask your Stoody dealer for details (consult the yellow pages of your phone book) or write direct.

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CITY BY CITY

The mayor included all subdivisions that would tie into the city's main outfall or that would rely on private cesspools. Cesspools, he said, already are overloading the underground water in some areas.

There is no immediate estimate of the effect of these moves on residential building. But one of the biggest residential growth areas in Greater Los Angeles—the San Fernando Valley—is largely within the irregular pattern of the city limits.

Planning commissioners, after an emergency meeting, have decided to grant conditional approvals. These make recording of a new tract conditional on a Board of Public Works finding that it could be connected to the city's sewage system without overloading it.

The Building and Safety Commission has taken the matter under study. Meanwhile, it is proceeding in its usual manner.

The City Council, which has the final say on new tracts, (subject to the mayor's veto) has taken action by withholding approvals on four subdivisions.

Even if the bond issue is passed, it will be some time before the works it authorizes will have any effect. Meanwhile, the mayor has asked the Board of Public Works to seek temporary means of alleviating the situation.

One plan reportedly under consideration by the Board of Public Works is the installation of valves in main sewer lines to operate more or less as regulating dams to spread the sewage peak to off hours.

Straw Ballot on Bridges

Miami, Fla.—Some 75,000 property owners are being polled by straw ballot to settle a tunnel versus bridge controversy. The outcome will decide whether the City Commission will spend $7 million to replace a pair of drawbridges over the Miami River—or spend $24.8 million to build two tunnels.

Ballots were mailed out by the Chamber of Commerce after the five-member commission was unable to come to a unanimous agreement on replacement of two 38-year-old bascule span drawbridges.

The proposed new 32-ft-high bascule spans or the tunnels would replace a 10-ft span at W. Flagler St. and a 12-ft span at S. Miami Ave. Records show that the Flagler St. Bridge had to be opened for river traffic on an average of 43 times a day last year, and the Miami Ave. Bridge, 38 times.

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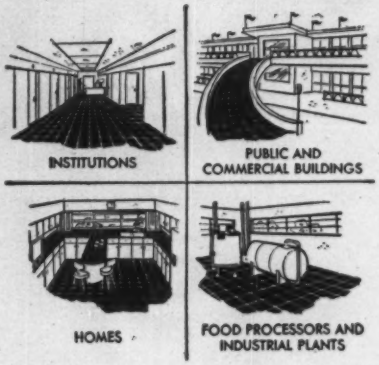

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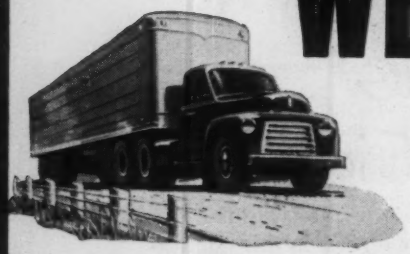
Here, we have capsuled a multi-thousand acre proving ground into one room! Here, our engineers can put 50 years' experience in building axles for trucks, buses, trailers, farm machinery, to use. Under scientific control and analysis, they run "shift tests," axle housing "bend tests," twist axle shafts 14° back and forth 36 times a minute, 24 hours a day, days on end. Or simulate a "chuck hole" shock every 4 seconds, 24 hours a day for months! A TDA exclusive!

WE SHIFTED TDA AXLES

on 5 tractor-trailer combinations axle operation on record!

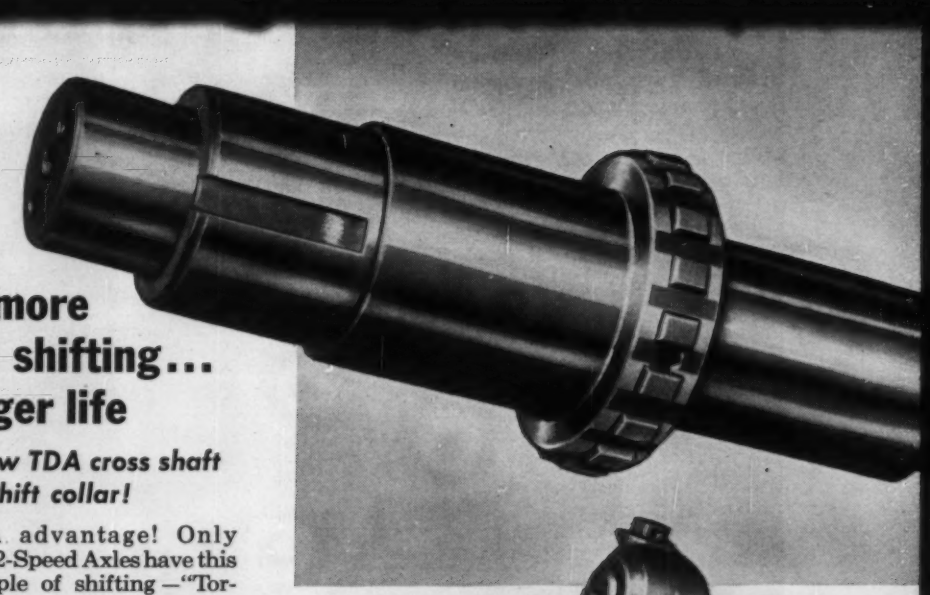


5 vehicles, averaging over 130,000 miles each—each averaging 2.7 shifts per mile . . . and all are still going strong!

Here's how TDA backs up indoor "Torture Chamber" tests with grueling outdoor, on-the-highway torture!

We installed 2-speed cross shafts and shift collar assemblies of the new TDA design, in five 5-ton tractor-trailer combinations. *Then the fun began!* Never before has there been such a murderous test of 2-speed axle shifting! All up and down the east coast, driving steadily day and night—shifting from fast to slow speeds and back again—averaging 2.7 times every mile, these tractor-trailers roared on to an average of over 130,000 miles apiece! That's 650,000 miles, 1,755,000 shifts in all—without noticeable wear, or repair stops. And the test goes on!

Meet our "Torture Tester"! With graphs showing speed and torque performance under any operating conditions he chooses—with special dials, recorders and electronic devices—he actually *drives* axles with scientific accuracy from his chair!



for more positive shifting... longer life

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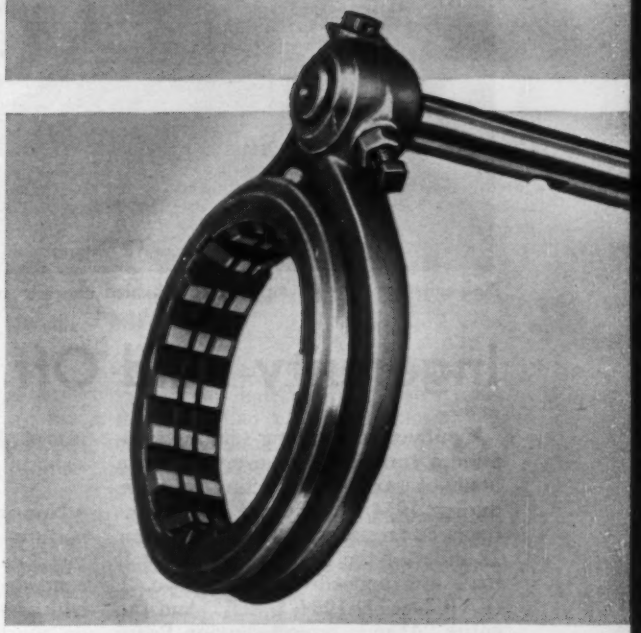
Another TDA advantage! Only Timken-Detroit 2-Speed Axles have this advanced principle of shifting—"Torture-Tested" indoors, road tested under the most gruelling outdoor driving conditions ever! The result? Longer life, less maintenance, repairs and downtime; lower operating costs!

Note that in the new TDA Cross Shaft (above), a large *single row* of driving teeth gives greatly improved locking action with the new TDA Shift Collar teeth. Wear is reduced. There is no "hopping" out of gear.

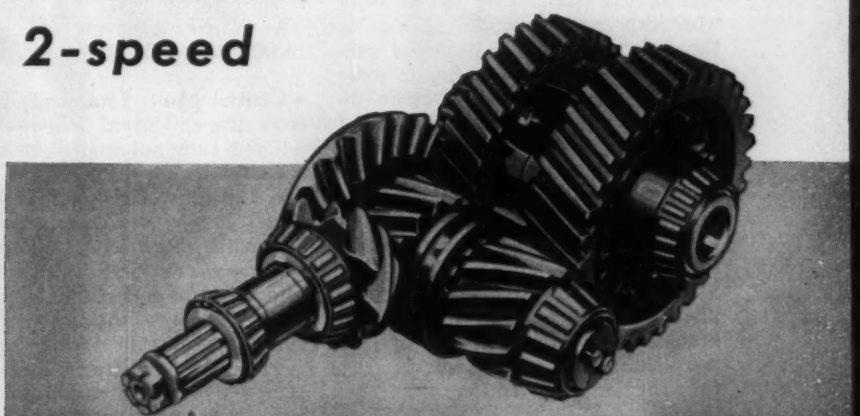
New TDA Shift Collar (right), has *three* sets of teeth for driving and engaging — center teeth for locking only. Far less wear on engaging edges. Locking functions completely separated from driving and engaging functions!

Push-Button Operated. All TDA 2-Speed Axles are push-button shifted, with automatic activation by your choice of electricity, vacuum or air.



1,755,000 TIMES

...in the severest 2-speed



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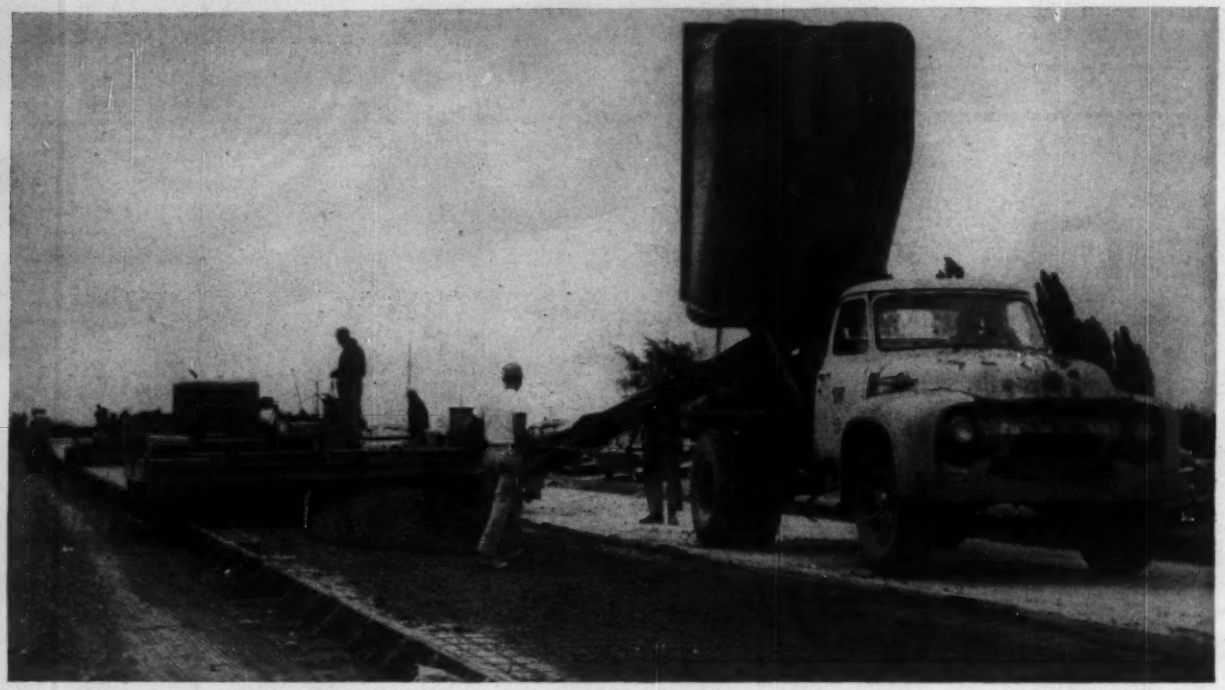


Non-agitating 4-cu yd dump trucks hauled concrete up to 5 miles on one 10-mile paving contract—an example of how . . .

Ingenuity Paid Off on Ohio Turnpike

Contractors all along Ohio's $326-million turnpike used every available hour of good construction weather during 1954 to advance their contracts as far as possible. The eastern 22 miles of the four-lane divided toll road was opened to traffic Dec. 1 (ENR Dec. 2, 1954, p. 22). And the entire 241-mile project—linking Pennsylvania's completed turnpike to Indiana's east-west toll road, now abuilding—is scheduled for opening to traffic by Oct. 1, 1955. The turnpike was 64% finished at the end of November, according to the latest progress report.

Each general contractor tackled his part of the turnpike in the light of what experience had taught him as the best and most expeditious procedures. Most of them relied to some extent—and some quite heavily—on subcontractors for various phases of construction.

• **No set pattern**—They weren't influenced greatly by how the other fellow moved his dirt, built his structures or laid his roadway pavement. Some followed generally accepted practices. Others boldly introduced innovations in construction that they considered particularly adapted to getting the job done efficiently and on time.

Take concrete paving, for example. Some contractors paved the 24-ft roadway pavements full width. Others placed the 10-in. reinforced concrete slabs in two 12-ft widths.

• **Non-agitated concrete**—Biggest departure from so-called conventional methods of producing and handling concrete was found near the eastern end of the turnpike. The contractor on construction sections C2 and C3, D. W. Winkelman Co., used a central concrete plant and non-agitating dump trucks for hauling all pavement and structure concrete on his 10-mile job.

His contract for completing the 10 miles of toll road, including 14 bridges and four box culverts totaled roughly $9 million. There were 77,000 cu yd of paving concrete and 18,000 cu yd of structure concrete.

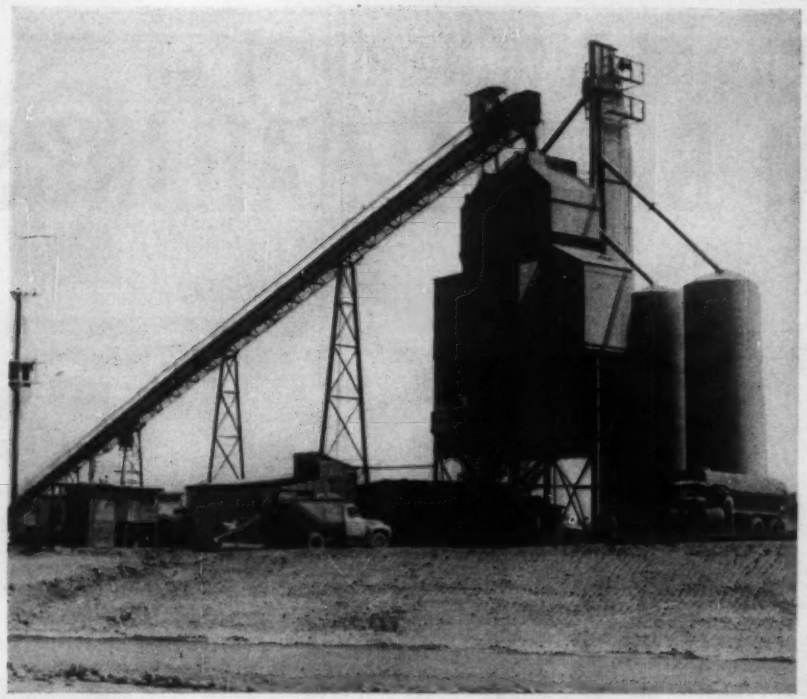
• **Central plant—5-mi haul**—The concrete plant, located midway on the job was fully automatic. It had storage capacity for 1,900 bbl of cement and 140 tons of slag and sand aggregates. It was also equipped with an automatic dispenser of air-entraining additive. Two 56-S mixers emptied into a 4-cu yd collecting hopper which discharged into the 4-cu yd dump trucks. A fleet of 14 of these non-agitating dump trucks hauled the paving concrete a maximum of five miles, and structure concrete a maximum of six miles. Maximum hauling time averaged 18 min., equal to about four trips per truck per hour.

Developed and produced by the Maxon Construction Co., Dayton, Ohio, these 4-cu yd gondolas are designed for quick loading and dumping. Loading time at the concrete plant, including 1½ min. mixing time, averaged 1¾ min. At the job site, the discharge time for their 4-cu yd load of concrete averaged 1 min. Average production was 2,500 lin ft of 12-ft width of pavement in an 8-hr shift. This was based on an average plant production of 120 cu yd per hour.

• **Adequate strength**—Specifications called for the concrete to have an entrained air content of 4% to 7%; a cylinder compressive strength of 4,300 psi at 28 days; a beam flexural strength of 600 psi at seven days; and a slump of 2- to 3-in. By comparison, average properties of the concrete were: Cylinder strength, 5,050 psi at 28 days; beam strength, 720 psi at five days; entrained air, 4% to 5%; and slump, 2½ in.

Although some of the other contractors viewed Winkelman's method of central-mixing and non-agitated hauling as somewhat of a departure from the conventional paving method, it had its advantages.

Perhaps the greatest advantage was the fact that bridge and paving pours—which required different classes of concrete—could be made simultaneously. Only slight delays were encountered in changing the mix design



CENTRAL PLANT, with its two 56S mixers and storage capacity for 1,900 bbl of cement and 140 tons of aggregates automatically batched and mixed 77,000 cu yd of paving concrete and 18,000 cu yd of structure concrete in Winkelman's 10-mile contract, at an average production rate of 120 cu yd per hr.

on the batching floor of the concrete plant.

Also the lack of extra equipment and personnel at the paving site eliminated congestion and reduced costs.

The 10-in. pavement was placed in two layers: A 7½in. base course on which was laid the 16x11.5-ft sheets of welded wire fabric, style 6x12-0/4, then the 3-in. top course. Major items of paving equipment included a spreader for the base course, a combination spreader and finisher for the top course, a machine for making transverse joints, and a longitudinal finisher.

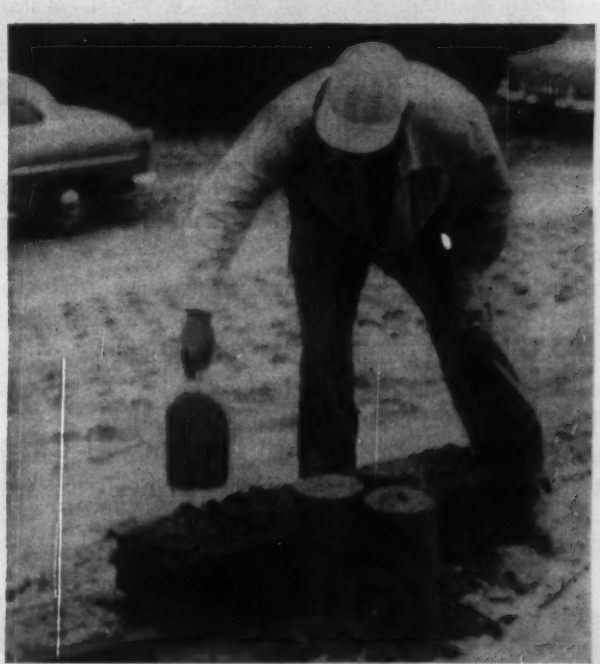
• **Supervision**—Winkelman's top men on the job included: K. S. Kurtenacker, vice president and administrative assistant to Dwight W. Winkelman, president; Geo. Cecil, project superintendent; and Carl Barnhart and Wm. Delaney, Jr., grading and paving superintendents, respectively.

Wm. Bryan is project engineer for Richardson, Ramsey, Morehouse and Fisher, Pittsburgh, Pa., contracting engineers on the design and construction supervision of Winkelman's two sections C2 and C3, as well as the adjoining section C1 which extends east to the Ohio-Pennsylvania state line. Chas. Way and Eugene Strutt are resident engineers, and N. J. Straub is materials engineer.

A. E. Casey is liaison engineer on the three construction sections for the J. E. Greiner Co., general consultants to the Ohio Turnpike Commission on the entire 241-mile turnpike.

R. S. Beightler (Maj. Gen., USA-Ret.) is executive director of the Ohio Turnpike Commission. T. J. Kauer is chief engineer and R. J. Lehman is his assistant. Other supervising engineers with the commission are: E. L. Sheley, construction; C. W. Hartford, right-of-way; G. K. Jewell, soils; and E. H. Scofield, materials. J. D. Hartshorne is director of research and information.

• **Subcontracts**—Winkelman subcontracted a half-dozen construction items that had a total contract value of $1.4 million. The largest single item was about $480,000 worth of bituminous macadam shoulder work. The others included: structural steel erection, placing reinforcing steel, constructing one large reinforced concrete box culvert, seeding and sodding, and about $250,000 worth of roadway excavation.



FIELD TESTS for quality control of concrete gave average values of: 4% to 5% of entrained air (at left); and cylinder compressive strength of 5,050 psi at 28 days; beam flexural strength of 721 psi at five days; and 2½-in. slump (at right).

New Design and Data Handbook on
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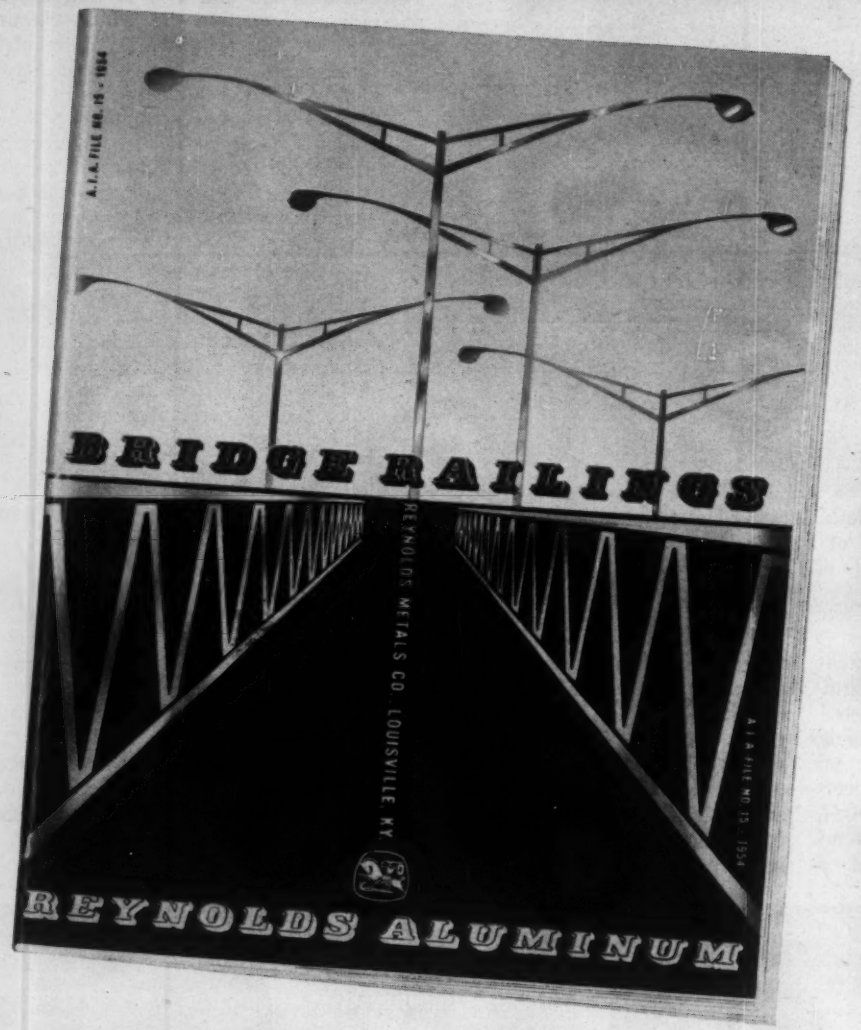

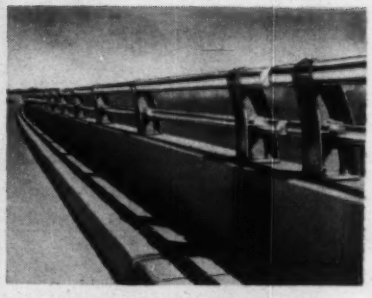

Reynolds Aluminum Railings on Southwest Trafficway, Kansas City, Mo.

Reynolds Aluminum Railings on Pinto Creek Bridge, Globe, Arizona

Reynolds Aluminum Railings, Light Standards and Electrical Conduit Racks on Bay St. Louis Bridge, Miss.

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For quick reference, see catalog $\frac{5a}{Re}$ in Sweet's Architectural File.

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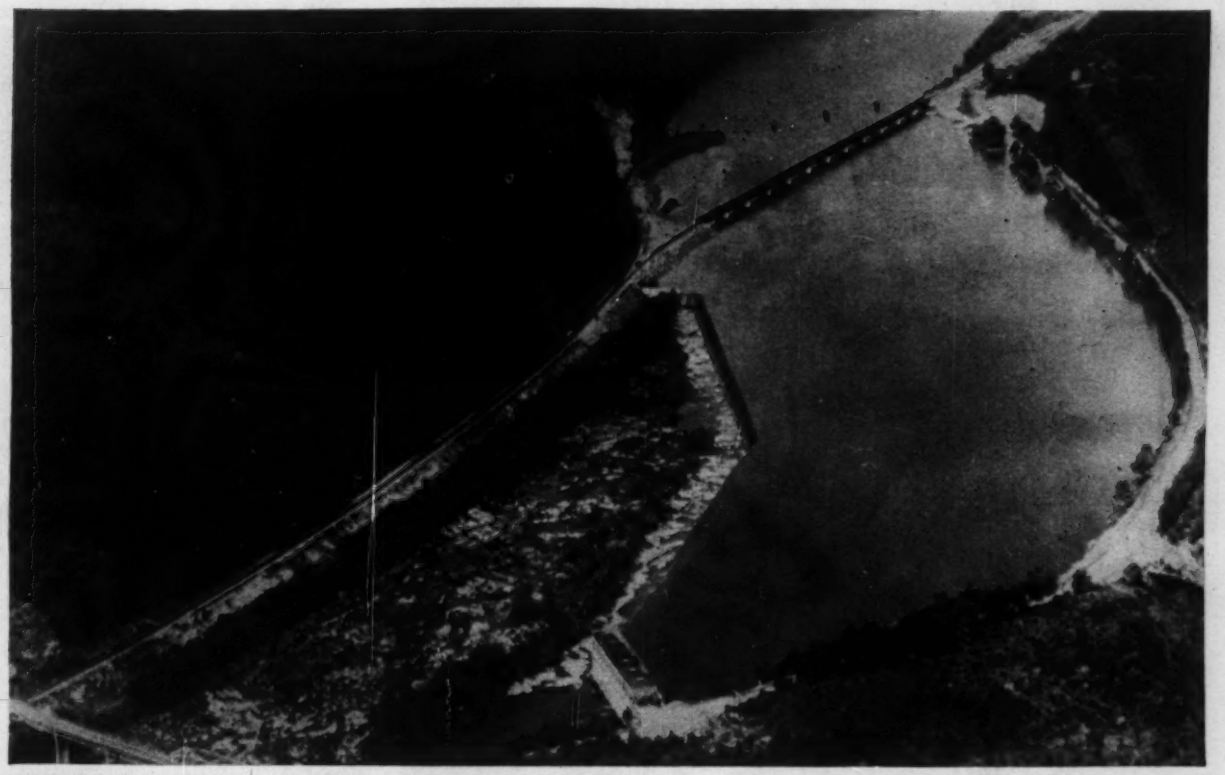

RESERVOIR BOTTOM has little silt, resembling streambed at left, so piers for new bridge were built by sand-island method.

Rail Bridge Cuts Two Sharp Curves

Launching 10-ft-deep plate girders with the aid of a barge was the highlight of a Virginia railroad bridge job that eliminated one 6-deg approach curve and reduced the other one from 8 deg to 2 deg 30 min.

Foundations were the more troublesome part of the work, however, being built in deep water on a bare-rock, boulder-strewn bottom. Sheetpile cofferdams in temporary sand islands solved this problem.

The new bridge is a Chesapeake and Ohio Railway Co. crossing over the James River near Snowden, Va. A total length of 1,200 ft is made up of twelve 100-ft single-track through plate girder spans. The eleven piers average 29 ft in height, are 28 ft wide at the top, and 34 ft wide at the base.

Piers stand normal to the centerline of the bridge rather than parallel to the stream flow, providing a lower-cost structure that, at the same time, does not reduce stream flow below permissible limits.

Ralph E. Mills Company, Inc., of Salem, Va., constructed the masonry and performed the grading on line changes of the approaches.

Water depth at the piers was 23 ft. Construction was difficult because of large boulders and uneven rock bottom, with little or no earth. Cofferdams were erected by the sand island method. In the sand islands single lines of steel sheetpiling formed cofferdams in which excavation could be carried out. Where the bottom was es-

TRACK DOLLY at center of girder (left) carries it onto previously-erected span, where dolly is fulcrum for tipping girder onto barge. Crane (right) raises girder for dolly removal, then helps barge transport girder to place.

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pecially rough, a second line of steel sheetpiling was driven.

The sand island was shifted from pier to pier by a clamshell excavator mounted on a barge. In the first move, the excavator moved the sand to a halfway point, then in the next motion, shifted it to the proper location for the next cofferdam. Concrete was placed by pumping, a total of 4,500 cu yd being required for the piers and abutments. Maximum pumping distance was 1200 ft.

Structural steel girders were 10 ft deep and weighed 35 tons each. The girders were erected by the railroad's bridge forces after fabrication by the American Bridge Division of U.S. Steel Corp., Roanoke, Va.

In erecting the spans, each girder was unloaded from a railroad car onto a dolly car at the girder midpoint, and rolled by a crane to the end of rail on the preceding span. The dolly car served as a fulcrum as the girder's inner end was raised by the crane. The far end of the girder at the same time lowered onto a barge of 24 pontoons. The dolly car was then removed and the girder floated outward between the piers, supported by crane and barge. When the girder neared its masonry support, the barge became a fulcrum. The inner end of the girder was lowered until the shoe on the far end came to the level of the masonry. After seating, blocking was removed from the barge, and the near end of the girder lowered into place on its masonry.

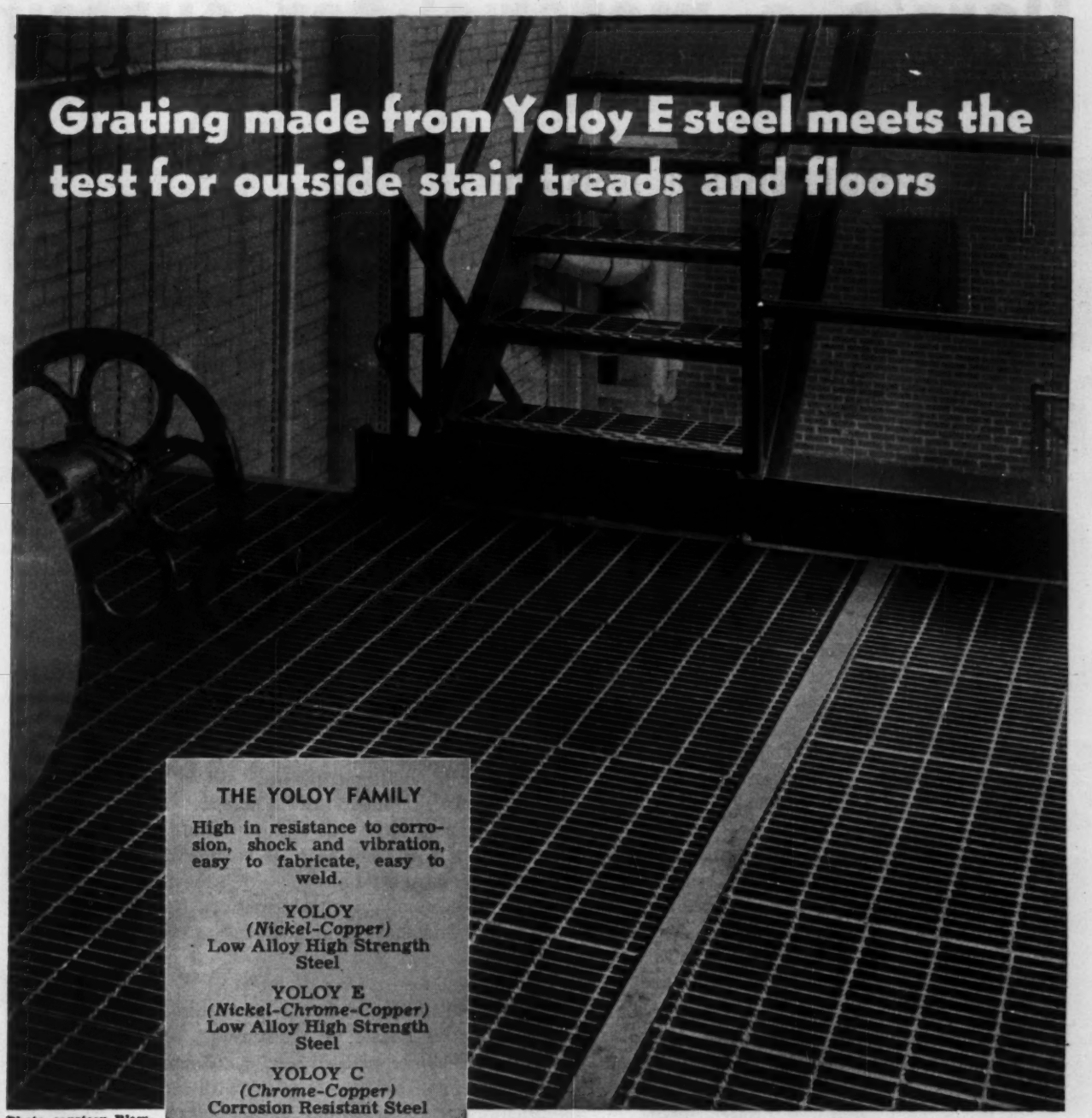
Girders for the 12 spans were placed with enough time between operations to allow the rivet gangs to fasten in floor beams, stringers and laterals, and the bridge force to place the next section of track.

The grade for the line change was built while the masonry was under construction, and track was laid by C&O forces while the steel was being erected. Work was scheduled and completed so that new approaches were ready to be cut into the old line when the bridge superstructure had been completed.

Careful planning and scheduling, along with the cooperation of the labor forces, made it possible to put the new bridge and line into service slightly more than four months after steel erection was started.

• **Management**—L. L. Shirey, present C. & O. bridge engineer, and C. H. Chapin, retired bridge engineer, designed the new structure. G. R. Jenkins, district engineer, supervised field engineering. M. I. Dunn is C. & O. vice-president, construction and maintenance. Supervising the work were C. L. Crummett, division engineer, and W. K. Putney, supervisor of track.

Grating made from Yoloy E steel meets the test for outside stair treads and floors



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Low Alloy High Strength Steel

YOLOY E
(Nickel-Chrome-Copper)
Low Alloy High Strength Steel

YOLOY C
(Chrome-Copper)
Corrosion Resistant Steel

Photo courtesy Blaw-Knox Company.

Youngstown

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● Safety - durability - atmospheric corrosion resistance - good appearance - all are inherent in this grating fabricated from Yoloy E high-strength steel. The design of such grating contributes toward a non skid surface. The Yoloy family of steels includes several types. For details, write our nearest District Sales Office.

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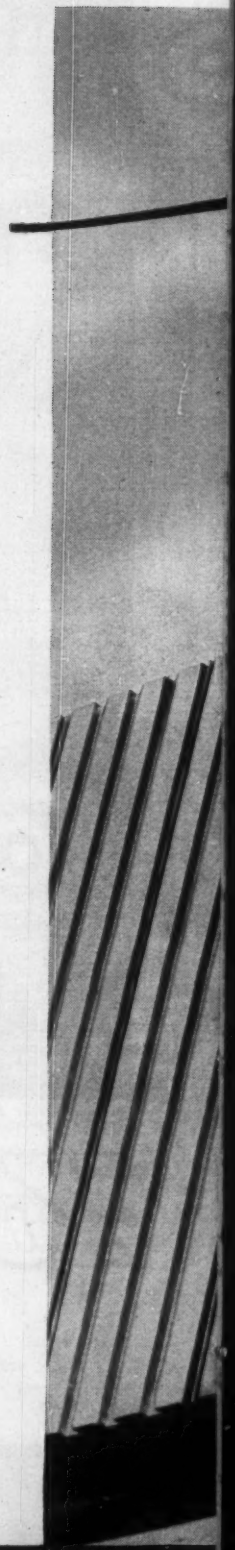
. . . that can meet 2-side fire test requirements
. . . that's good for the life of the building



IF FIRST COST were the only consideration in planning a modern building, many of today's construction practices would be out the window. But first cost is only part of the picture; it's only one of the factors that determine overall cost for the life of the building.

That's particularly true of materials used for curtain-wall construction. There are materials with a lower original cost than Stainless Steel. But in the long run, the advantages of Stainless more than offset any difference. Here's why:

Stainless Steel has proved its ability to stand up in the face of atmospheric corrosion. The Empire State Building's Stainless trim has been in service a quarter of a century; there's no evidence of corrosion. Industrial buildings have given satisfactory service even longer. Besides, Stainless is the material to which the process industries turn when they have a severe corrosion problem.

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Because of Stainless Steel's inherent strength and because no allowance need be made for the effect of corrosion, thin sections can be used. This lighter weight translates itself into important savings in building construction.

Stainless Steel has a high melting point, and when used with a proper insulating core, will meet fire test requirements from both inside and outside the building.

And finally, Stainless Steel is a material you can count on over the entire projected life of the building. There are no replacements and maintenance is at a minimum.

For true economy in curtain-wall construction, you'll find that nothing equals Stainless Steel.

As the producer of USS Stainless Steel, we have worked closely with the fabricators of Stainless Steel panels for curtain-wall construction. We'll be glad to send you further information and put you in touch with these fabricators. Write to United States Steel Corporation, Room 4602, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

See The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

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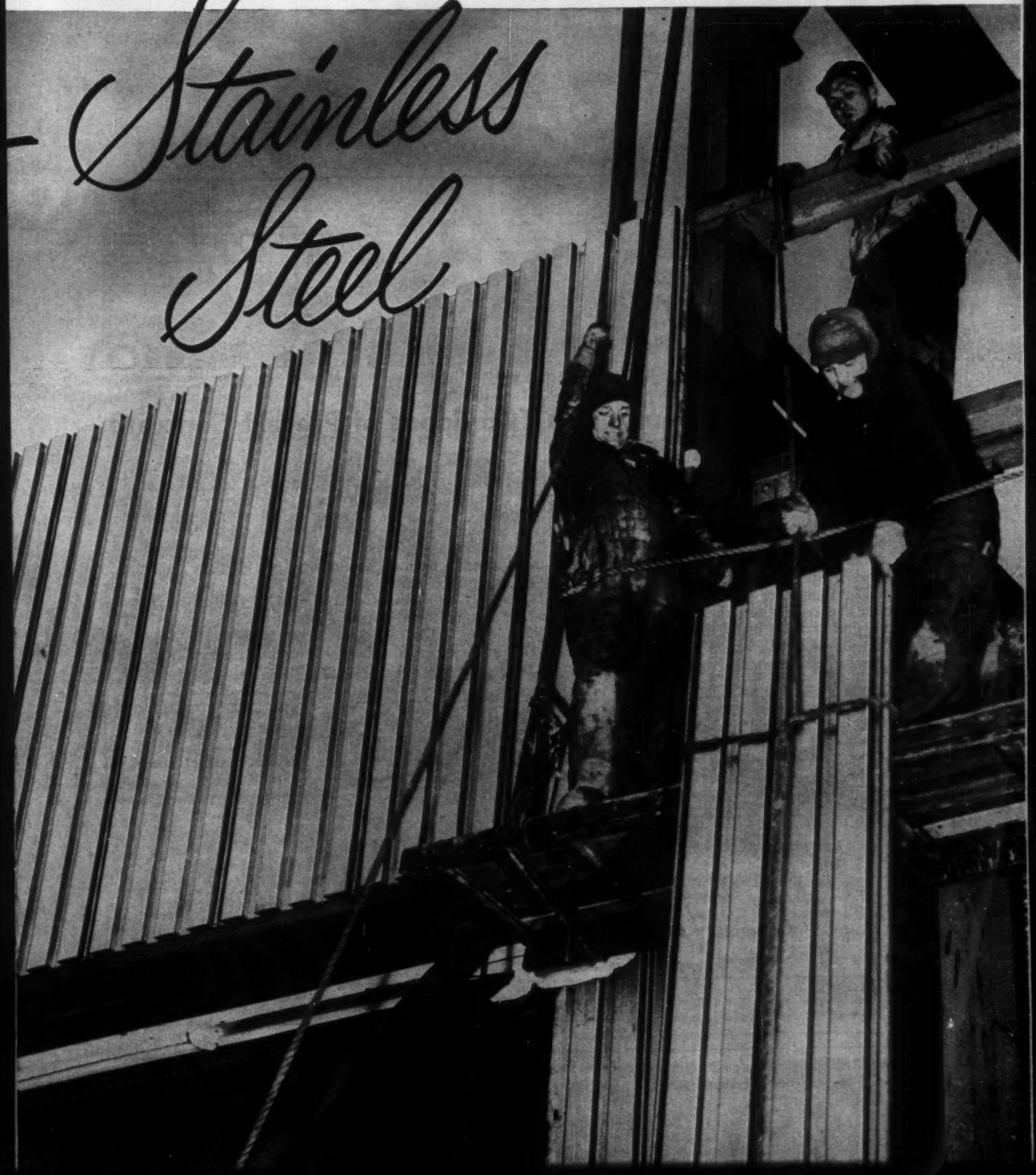
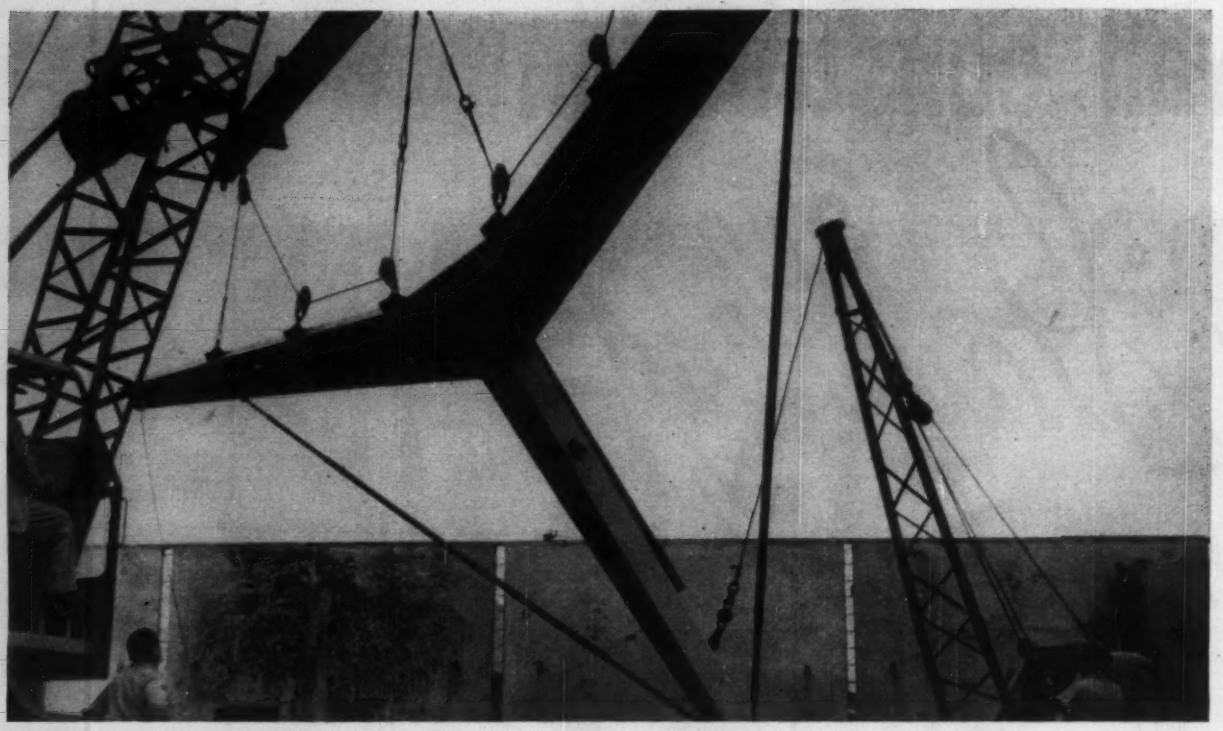
5-209

UNITED STATES STEEL

wall construction

Stainless Steel





PRECAST CONCRETE BUTTERFLY is lifted into place with a 6-point pickup to form part of a rigid frame for a warehouse.

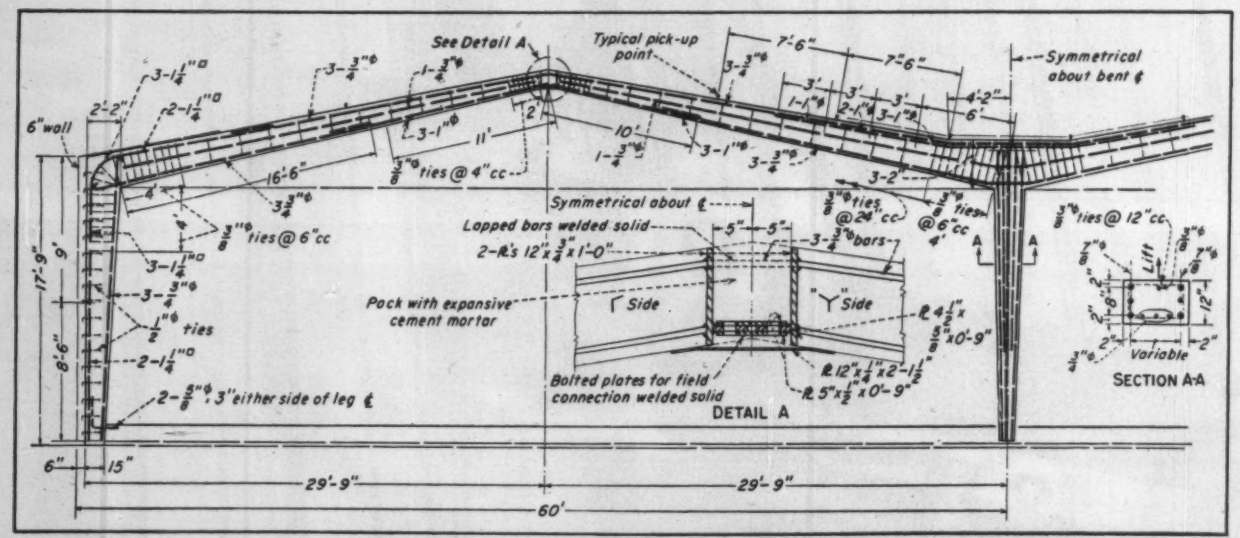
Warehouse Rigid Frames Are Two Spans of Precast Concrete

Raymond E. Layton
Consulting Engineer
Hayward, Calif.

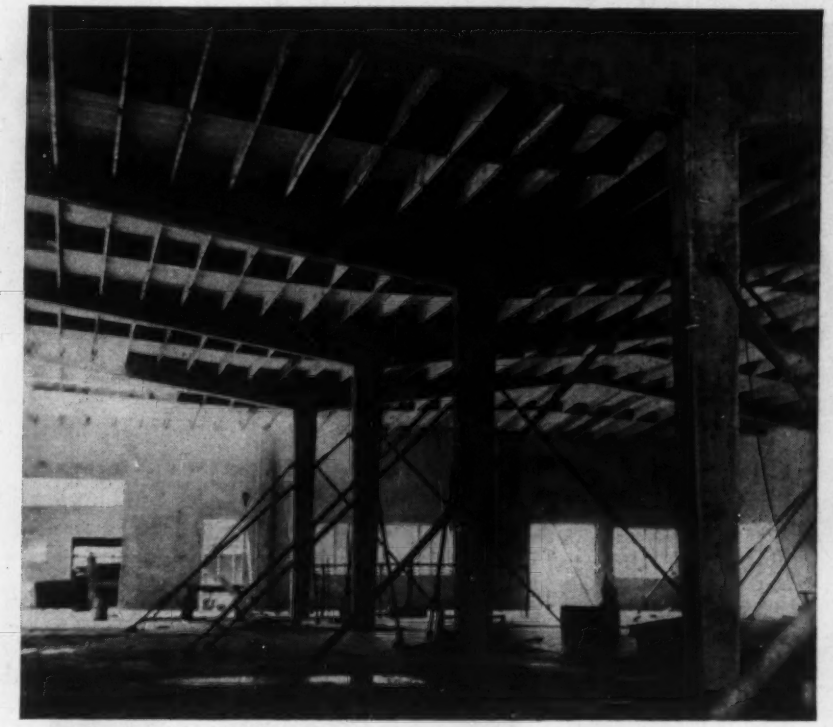
Two warehouses recently constructed in the San Francisco Bay Area are framed with two-span precast concrete rigid frames of an uncommon type. The frames are precast of three elements: a center butterfly or wye member and two side bents. The members are joined after erection to make the assemblies complete rigid frames. Experience gained on this work shows both the advantages and the pitfalls of such precast rigid frames for use on small buildings.

One of the two warehouses is 85x 120 ft in plan. In this case, the rigid frames run the long dimension having two 60-ft spans. This permits a solid partition along the center column line to separate distinct uses of the building. The other building is 80x125 ft in plan and in this case the rigid frames run across the building having two 40-ft spans. In each instance the center butterfly is cast just as wide as one span; 60 ft for one building and 40 ft for the other. The side bents are cast half span width.

The structures required careful design analysis and cautious construction procedures. Success of the work can be attributed to full cooperation between contractor and engineer. This held construction costs down and helped prevent troubles that might have appeared during construction.



CENTER AND SIDE BENTS are joined by welding reinforcing bars at crown and filling gap with gunite. Rigid frames are fully continuous and are designed for lateral forces.



COMPLETED WAREHOUSE shows timber roof in place, but with temporary braces on the concrete bents.

• **Advantages**—Experience gained on this work shows that buildings framed with such precast concrete rigid frames have these advantages:

1. Erection is fast. As soon as all concrete has cured and gained strength, a building of 10,000 sq ft can be completely erected in two to three days.
2. A pleasing architectural effect results. This could well be adapted to such structures as churches, gymnasiums, theaters, and schools.
3. Costs are not out of line. And with further experience—including use of prestressing, lightweight aggregate and improved fabrication and erection procedures—it is believed that costs can be reduced to become very competitive with any other roof structure.
4. A roof structure is provided that is practically fireproof. Even though the timber joists and sheathing should burn off, the frames will remain standing and the walls will not be pulled over as so often happens. In many cases, an examination of insurance premiums required for the type of warehousing needed will justify the use of a precast concrete frame.

• **Pitfalls**—Admittedly, precast concrete rigid frames have drawbacks. Most are due to inept design and erection procedures. Some of the matters to be guarded against are:

1. Construction tolerances must be plus or minus ¼ in. This requires a contractor who is very meticulous and will work within such close tolerances.
2. Design costs are higher than for more conventional structures because of the rather difficult analysis involved in the rigid frame.
3. Special attention must be given to foundation design. Footings must be sized for equal dead load settlement. And differential settlement must be reduced to a minimum. Reason is that unequal settlement of the footings would cause very high stresses at several critical points in the structure.
4. At this time cost of precast bent framing is greater than other conventional types of roof framing.
5. Erection requires a contractor skilled in rigging and in handling precast elements. Failures of single-span precast rigid frames have been reported where little thought was given to erection stresses and proper rigging.

• **Design**—The bents were designed for the effects of vertical dead and live loads as well as lateral forces from earthquake and wind. It was found that the roof diaphragm deflected sufficiently under lateral loads to warrant taking such forces by the rigid frames. But lateral forces at right angles to the frames will be taken by the roof diaphragm. The frames were designed using moment distribution, including an analysis of the side sway conditions developed from lateral forces. And considerable analysis was undertaken to determine all of the erection stresses; in some cases these exceeded the in-service stresses.

• **Construction**—The center wye sections were cast by placing forms on the floor slab and casting one bent on top of another. A bond breaking material was used between each bent.

The members were lifted using six pickup points embedded in the concrete. The cable was rigged in such a way that nearly equal load was placed on each pickup point. Positions of the points were carefully designed into the bent.

The side bents were cast outside of the buildings on special casting platforms made of a 2-in. skin of concrete on a levelled ground space. In picking up the side bents, the center of gravity was computed very accurately so that the members would hang in a vertical position for easier placing.

Both the center and side bent sections were temporarily braced. As soon as all elements were in position, the crown connection was made. Top bars were welded together, and the bottom bolted-plate field connections were welded solid. Then the open space was packed with a mortar of expanding-type cement. This permits the crown connection to develop full design moment rather than serving as a hinge.

Walls of the buildings were also of precast concrete. About three days were required to raise the rigid frames and wall panels on one building and two days on the other.

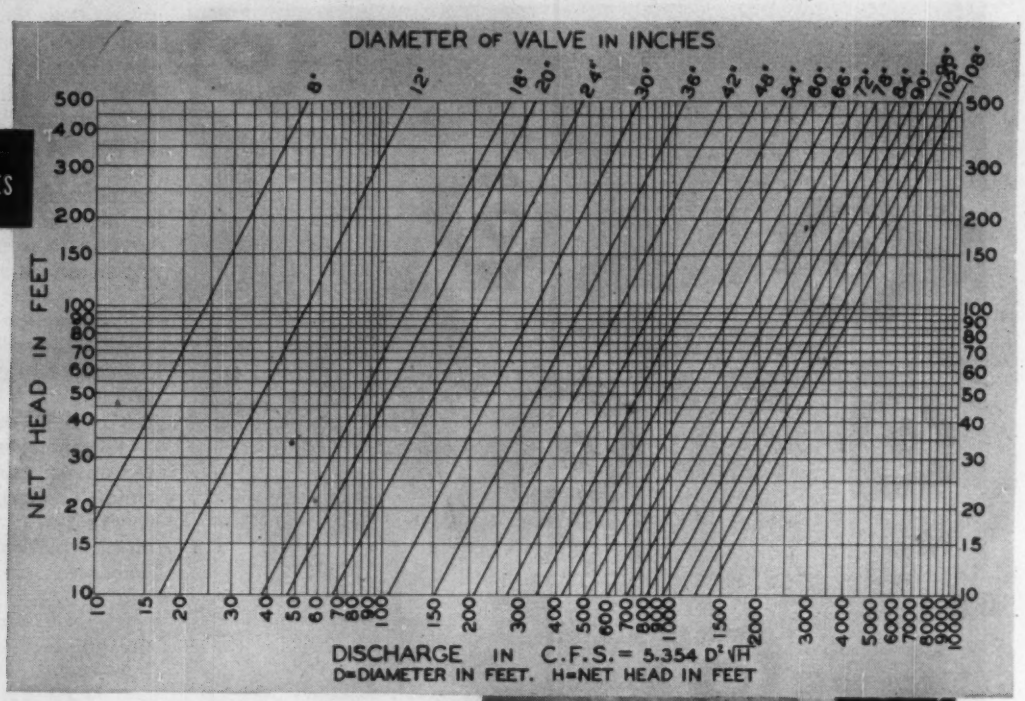
Roof framing is composed of 2x10 joists at 24-in. centers. Sheathing is ⅜-in. plywood. Roofing is a 3-ply, fire-retardant, built-up roofing.

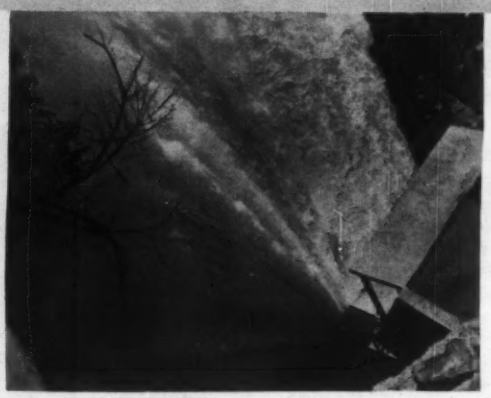
Cost of construction has not been accurately developed at this time. These warehouses are the first buildings of this type that have been attempted by the contractor and engineer involved. However, it is believed that for estimating purposes it can be assumed that the cost of this type of structure will not exceed $3.25 per sq ft of floor area.

One of the warehouses was constructed for the East Bay Sash & Glass Co. in Hayward, Calif. The other warehouse was built for the Sturdy Dog Food Corp. in San Leandro, Calif.

Construction was by Precast Erection Co. of Niles Calif. Design was by the author.

SMS
HOWELL-BUNGER VALVES





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The extremely rugged and simple design of the SMS Howell-Bunger Valve provides these essential features:

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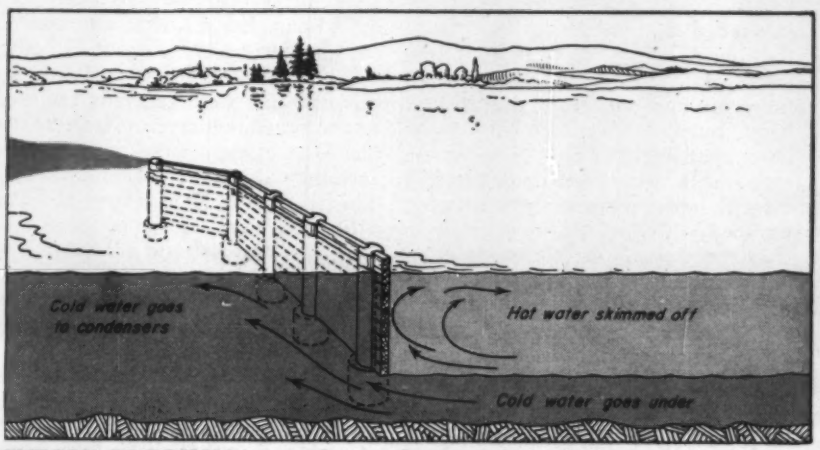
FINISHED SKIMMER WALL at world's largest steam power plant is a bridge-like structure of prestressed concrete.



THEORY OF DESIGN insures plant condensers cooler cooling water.

TVA Builds a Skimmer Wall

A. W. Hardaway, Sr.
Carpenter Foreman
Tennessee Valley Authority

TVA's first skimmer wall is finished. It appears as sort of a dam across the channel, but it was more like a bridge to build.

Design of this structure across the intake of Kingston Steam Plant and the theory behind its function were discussed in ENR Mar. 18, p. 47.

Here is how the structure was built.

The wall is comprised of prestressed concrete beams set in slots in sides of eight cylindrical, steel-encased concrete piers spaced 59 ft on centers. The piers are in 40 ft of water and the lowest beam rests 15 ft off bottom to allow underflow of cooling water.

Construction began late last January. The 11-ft dia. 45-ft long steel shell for pier 6 went in first.

Original plan had been to use three screw-type leveling jacks, made up from 2-in. pipe and 1¼-in. rods, to position the shell. But the rods collapsed when the caisson was set down, probably due to unequal loading caused by the uneven supporting rock surface. Other means of leveling had to be devised.

The caissons had four 6-in. dia. pipes equally spaced about their inside perimeters for use in initial rock drilling and for insertion of the first four of twelve 2-in. anchor pipes. These pipes were now utilized as casings through which four 5-in. diameter pipes were inserted to serve as leveling devices. Chain jacks fastened to the top of these pipes and to the rim of the caisson provided means of vertical adjustment permitting accurate leveling of the caisson. Horizontally, the caisson was held by four concrete anchors weighing about 2,500 lb each.

Overburden on the rock at this point was only 3 or 4 in. of muck; cleaning was accomplished by an air jet. Then the caisson was ready to be sealed with concrete and filled up to 14 ft above lake bottom as specified.

• **Methods are improved**—Underwater placement of concrete was by means of a 2-cu yd bottom dump bucket handled by barge-mounted crane. At first this bucket had a steel lid on top. Considerable concrete loss resulted from agitation of the water as the bucket was withdrawn. This was thought to be due to the suction action of the closed-top bucket. Subsequently the steel lid was removed and replaced by a heavy canvas flap cover which dropped open as soon as the concrete was dumped. This was a substantial improvement.

On the day following concrete placement, the 5-in. pipe jacks were removed and a core drilling rig was mounted on the top of the caisson. Four holes were drilled 15 ft into rock. Cores proved to be good limestone, but broke apart at numerous small weathering seams. Four double extra strong 2-in pipes were now inserted through the 6-in. casings and fastened in position with their bottoms 3 in. off the bottom of the cored holes. These pipes served as anchors and insured placement of grout at the bottom of the cored hole. Grout (1 part water and 1 part high early strength cement) was placed in the 2-in. pipes, using a section of 2-in. hose and the bottom portion of a 30-gal drum suspended about 30 ft in the air.

Two or three times as much as the computed quantity of grout required to fill the pipe to the top of the concrete pour was placed. This was done to provide against possible loss of some grout due to leakage. Inspection the following day revealed that some of

SURVEYING NEWS

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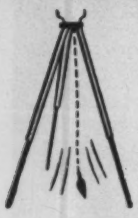
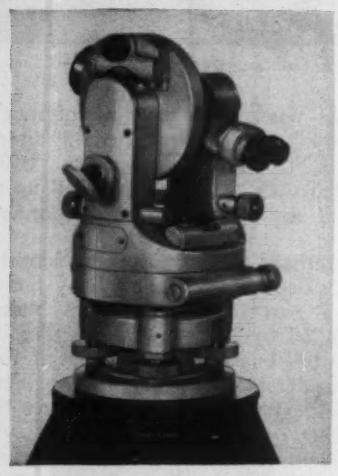


Has this been your problem? Now—old-type mechanical plumb-bob replaced by can't-miss optical principle



- **Improved Theodolite reads horizontal and vertical circles simultaneously, through same eyepiece**
- **Reads direct to 1 min. with no matching of lines—no parallax**
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the grout had leaked out either at the top of the rock (at the seam between concrete and rock), or through seams within the rock. The grout in the 2-in. anchor pipes having set up, it was now necessary to add grout by placing it directly into the six inch pipe from the top. Grouting was continued until it was determined by sounding with a rod that the grout was well above the required level.

As provided by design specifications, the caisson was unwatered three days after grouting of the anchors. Good sound concrete was found, and chipped down to the plan grade. A portable wagon drill with wheels removed was now lowered into the caisson to drill 3½-in. holes for an additional eight anchor pipes, spaced equally about a 9-ft circle.

In drilling the first hole, water was encountered when the drill passed from concrete into rock. This necessitated pumping with portable pumps suspended within the caisson from the top. A long piece of pipe or flexible metal hose carried the exhaust fumes up and outside of the caisson. Most, but not all, of the subsequent holes contributed a flow of water. As each hole was completed and the drill bit withdrawn, a tapered wooden plug wrapped with burlap was inserted to stop the flow. With the completion of drilling operations, the wagon drill and pumps were lifted from the caisson. Plugs were then removed, anchor pipes inserted, and the caisson allowed to fill with water.

To speed placement of a larger quantity of grout than had been previously used, it was decided to employ a grout pump. A total of 96 bags of cement was used for the eight anchors, an excess being provided to assure against loss from leakage into seams. Upon unwatering the caisson three days later, it was found that all holes had been satisfactorily grouted. The two-inch anchor pipes were now cut off at the top of the concrete and a 1-ft high, 9-ft diameter leveling pad was poured as a seat for the 8-ft diameter upper portion of the pier. Holes were drilled and fourteen 2-in. square steel dowels were set and grouted a depth of 6 ft in the concrete. These were to provide anchorage between the lower and upper sections of the pier.

The 30 ft long steel shell for the upper portion of the pier was transported to the site by barge. While in a horizontal position, this shell was aligned and brought to a true cylindrical shape, and secured thus by means of reinforcing bar spokes and braces welded in as required. The design reinforcing steel was also installed at this time.

This steel shell was then hoisted and lowered into position within the 11-ft caisson. After alignment and plumbing, the 8-ft shell was secured in place by welding struts and ties to the outer 11-ft caisson.

Concrete in the 8-ft caisson was placed in three 10-ft lifts, one lift per day. The cement content was reduced from the 8 bags per cu yd used for underwater placement to 6 bags per cu yd.

A diver was brought to the project for the underwater cutting operations necessary for the removal of the upper 30 ft of the outer caisson. A piece of floor grating with a pipe handrail served as a working platform for the diver. This was suspended from the boom of the floating rig and moved around the caisson as cutting progressed. Cutting was done with a standard oxygen-hydrogen underwater cutting torch, lighted prior to submergence. Continuous contact with diver was maintained by telephone. The cutting operation was completed in 2½ hours, but this time was reduced on subsequent piers to about 1½ hours.

Erection procedures outlined for this first pier were generally followed on the remaining seven. However, on pier 4 extremely large cavities were encountered in the rock foundation. This resulted in large inflows of water with consequent slowing of operations. Drill steel was lost and additional and deeper holes had to be drilled to provide adequate anchorage. A total of 683 bags of cement was used in grouting the anchors of this pier.

Prestressed concrete beams for the wall were barged in. Beams had been fabricated with a 1-in. raised portion at each end so that all load was transmitted through the ends. The resulting 1-in. open slot between beams was made water tight by a rubber seal cemented to the beams prior to placing. An interesting feature of these beams was the fact that although 52 ft 5 in. long and with hollow cores, they were sufficiently flexible and strong one week after pouring to be hauled 35 miles to the project with front end resting on the frame of a trailer hauling unit and back end supported by a two wheeled dolly.

The condensers of five generating units at the Kingston Plant are now using water drawn through the slot between bottom of wall and bottom of lake. Temperature tests will be made from time to time to check on actual temperatures of the water being used.

The project manager at the Kingston Steam Plant is H. T. Lofft. G. H. Kimmons is construction engineer, and J. C. McCraw is construction superintendent. In charge at the job site was L. M. Sharpe, Jr., for construction and J. L. Reed for the engineers.

(Advertisement)

New Entrant in Crawler Tractor Field

When the Management of The Eimco Corporation, one of the West's oldest and largest manufacturers of heavy mining and industrial machinery, decided to go into the tractor field, they did so with their eyes wide open. They knew they would have to go into tough competition with the big three. They knew they would have to overcome buyers' purchasing habits, and the strong entrenchment of existing tractor manufacturers.

A very careful and exhaustive study was made of tractors, their weaknesses, their design and service short-comings; all in light of what it is the user of tractors the world over wanted to have in his tractor.

After this was done, Eimco was convinced that there was a place for a better tractor. Eimco believes that the contractor, the quarry operator, the miner who uses the tractor as an aid in making his living, in reducing his costs, in making possible a profit for the work that he does, would listen with an open mind to a responsible, dependable manufacturer able to offer that kind of a really better machine.

Eimco has put over five million dollars into the perfection of this tractor. Eimco believes that men who buy tractors and use them would want to have spelled out in this first announcement all the descriptive facts which tell why the Eimco is really a better tractor. Important advances in design and construction give to you as the tractor user more for your money initially, easier operation, greater work ability and lower maintenance costs.

With this in mind, the facts are proudly presented herewith.

Eimco's 27,000 pound tractor (34,000 pounds with bulldozer) with 120 HP Diesel engine, torque converter and ability to turn in its own length by driving one track forward and the other reverse and "The easiest tractor on the market to operate — bar none."

The Eimco Tractor is an entirely new prime mover with many important features in addition to those listed above, such as: Oscillating tracks, even with attachments; full visibility for the operator; finger-tip control that is as easy to operate as your 1955 automobile — without clutches to engage or gears to shift, plus instant reversal; alloy steel construction and sealed anti-friction bearings.

Eimco realizes that there are three or four well established manufacturers producing competitive crawler tractors, but believes that there are many people interested in a superior product that will give them lower costs, more production, and lower maintenance.

This Eimco Tractor, built for the heaviest most rugged service, but selling at a price of $15,950, will absolutely have to be investigated by everyone before buying a tractor in its work class.

In the pages that follow, details on the many superior features of this new tractor tell you why this is a better tractor, why it will do more work for you and how you can benefit from its use.

Everything that years of experience in heavy machinery have shown to be better is built into this tractor, from alloy-steel castings made from electric furnace steel to the use of the finest and latest machine tools for high production and extreme accuracy in machined parts.

Eimco was not handicapped by a shop full of antiquated ideas that could not be discarded—**they started fresh with today's best available methods,** and developed many new methods that are not used anywhere else to obtain a greatly improved product.

For instance, a new process of production liquid salt hardening was developed for the selective heat treatment of the critical gears, sprockets, track rollers and front idlers so that the contractor can be assured of much longer life in these important parts.

The same fresh approach was used in the sound engineering of the tractor details. **Each part is**

THE EIMCO CORPORATION
Salt Lake City, Utah—U.S.A.

Eimco Tractor with loader attachment cleaning hot slag pocket at steel mill.

designed for strength and simplicity. The tractor must be compared, piece for piece, with its counterpart on any other tractor to appreciate its superiority of design.

For the user, this means longer life in the machine, more work without down time, and lower parts inventory.

Eimco tractors are in use all over the World — Most of the tractors have the Eimco Loader mounted on them. The critical test of any tractor is its ability to withstand the strain of heavy attachments, and the most abusive is the heavy-duty rock excavator and loader.

Other tractor manufacturers did not build into their design the extra strength required to absorb the unusual twisting forces and thrust loads in all directions that result from mounting a heavy attachment. A loader will in many cases add a working load in excess of the tractor weight. **When Eimco built their Tractor-Loader there was no tractor on the market that was built heavy enough for these severe loads. Eimco's tractor has this additional strength** — it was built to work efficiently and effectively with ALL attachments. Consequently, in the normal functions of a tractor it will give exceptionally long economical life.

COMPETITIVE TESTS

In many competitive tests and in applications so severe that no other tractor would take the punishment, the Eimco Tractor has proved its superiority.

Digging hard clay directly from the bank without drilling and blasting, at an open cut mine, found an Eimco Tractor with the 105 Loader matched against a redesigned shovel mounted on a popular brand tractor of comparable power and bucket size. **The extra drawbar pull of the Eimco with torque converter drive made it possible for the Eimco to dig and load easily** 153 six-yard trucks in a day as compared with a hard-pressed 90 trucks for the conventional tractor. This mine immediately obtained its second Eimco.

SLAG POCKETS

The largest steel companies at twelve different plants use fourteen Eimco Tractors in their open hearth furnace slag pocket maintenance program. There is no harder job on any contract anywhere than this operation of breaking out solidified hot slag before a furnace is rebuilt. Working in temperatures from 1600° to 2000°F., many times the bucket is hooked under the hot bed of slag and the rear of the tractor raised into the air by its own power as much as 8 ft. and then allowed to drop, acting as a giant crowbar.

Under these conditions the Eimco operates on its front idlers only. Many of these tractors have more than 3000 hours service. NONE have had idler or roller trouble.

You will agree that **this machine is built** the way modern tractors should be built, and **the way you have wanted tractors to be built.** The Eimco Tractor had to be a more rugged simpler machine in order to obtain a position in the field of established tractors.

All of the tractor parts that have given you high maintenance costs on other tractors have been substantially improved and strengthened. Maintenance costs on the major trouble spots such as tracks, final drive, clutches and transmission have been cut in half. Based on the eighteen months of experience Eimco has had with these tractors in the field, it is estimated that your overall maintenance costs will be one-third less under similar conditions than on your present equipment of comparable size.

SUBSTANTIAL SAVINGS

Here are the main reasons for these very substantial savings, and more reasons are given later:

Each part is designed for maximum strength regardless of total weight, since strength cannot be sacrificed when the part must do a certain job. There is no cheap weight added for the sole purpose of increasing the drawbar pull.

Details of the heavier track construction are given later, but probably **the most important reason for negligible wear of the track assembly is that you do not drag one track to turn.** Turns are made with both tracks in motion so that the tractor rolls around in its own length with one track running forward while the other runs reverse.

All conventional steering and master clutches have been eliminated and you never have to adjust clutches.

TRANSMISSION

The unique transmission (patents pending) is absolutely fool-proof and accomplishes what cannot be done on any other tractor. Without any clutch pedals or gear shifting levers, **it is possible to shift gears under full speed and full power and to reverse the tractor instantly at all speeds.**

The final drive assemblies are extremely simple and rugged. **Shaft and gear stresses are substantially lower than on any other tractor.** The same design standards that have been used in heavy duty mining machinery that often works ten

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Digging in red clay at open cut mine.

Bulldozer mounted on Eimco Tractor on U.S.B.R. Wanship Dam Job. Operator was able to bulldoze along irregular face because of visibility and maneuverability in Eimco Tractor.

Slim's River crossing (Yukon) required large quantities of rip-rap broken from rocky ledges, at 40° below zero. Eimco Tractor with loader attachment handles 5 to 6 ton boulders.

to twenty years without repair have been used in the design of this tractor.

In the same way tremendously longer life has been designed into the ball and roller bearings used throughout this machine. All bearings are designed so that they should not ever wear out. **Bearings have been designed for about 100,000 hours average life under maximum load conditions.** Competitive tractors are built with bearings designed to give an average life of 20,000 hours or less. Your own experience with tractor bearing replacements will tell you how costly this one item can be.

In addition **the roller bearings in the Eimco Tractor are mounted in separate removable steel bearing cages wherever possible,** for protection of the gear housings and ease of maintenance. (See Figure 5a). This type of construction costs more to manufacture, but means large savings in upkeep.

Then to cushion the shock to all parts of the machine and to give even longer life to gears, bearings, and shafts, **the finest fluid torque converter is used between the Diesel engine and the transmission.** Extensive tests on trucks in the iron mines have shown that **transmissions lasted five times as long** with a torque converter as with the conventional drive. The shock transmitted to the transmission under starting loads was 75% less with the torque converter, and engines had to be overhauled one-third less frequently.

All of these factors mean that this Eimco heavy duty tractor with a minimum of maintenance will give you many years of unequalled performance.

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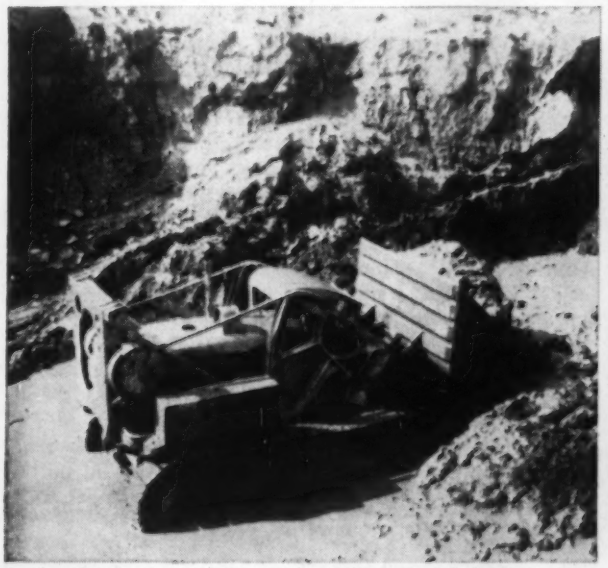
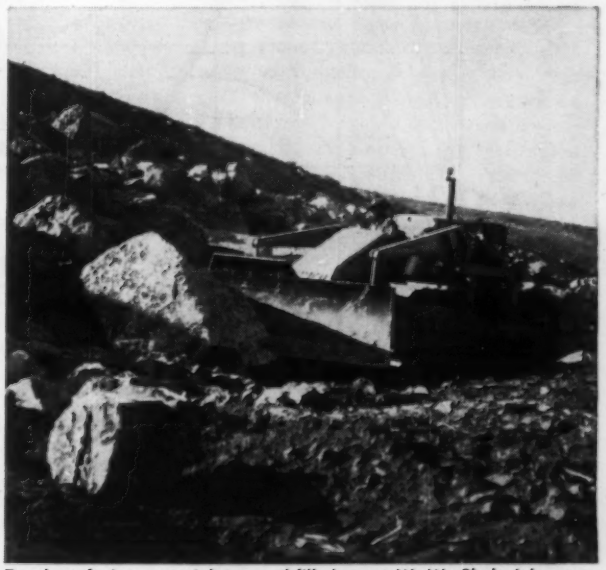


Mud and water washed into roadways by torrential downpour were removed by Eimcos with loaders. The rollers and idlers are perfectly sealed — keep the lubricant in and the dirt and moisture out.



To place facing material on earthfill dam at W. W. Clyde job, operators preferred Eimcos because of easy handling, maneuverability and quick response to controls.

(*Advertisement*)

Balanced Design with Torque Converter Provides More Drawbar Pull

The most important factor in the amount of work that a tractor will do is the drawbar pull that can be developed by the tractor.

Horsepower rating of the Diesel engine does not determine the drawbar pull of a tractor. Maximum drawbar pull is obtained only by the proper balance between weight, traction and proper application of the torque or "push" available from the engine.

The Eimco Tractor with torque converter matched to the Diesel engine continually matches the speed to the load. An increase in load automatically decreases the tractor speed without gearshifting so that the most efficient operation is obtained at all times.

With the torque converter, full drawbar pull is obtained even at a standstill. With tractors having conventional gearshifts, the engine would stall.

Tractors with a conventional manual gearshift transmission must be shifted to a lower speed range whenever the tractor overloads the engine. These tractors must be stopped to shift gears.

The Eimco Tractor can be held and started on steep slopes with only foot throttle control. The fluid drive also allows smooth contact for pusher operations. The torque converter takes the place of the master clutch for picking up the load. **This is the only crawler tractor on the market without a master clutch — no master clutch means no clutch wear.**

The Eimco tractor with torque converter has an infinite range of speeds in each of the two-speed positions in both forward and reverse. In "low" the speed varies from zero to 2 miles per hour, and in "high" from zero to 5 miles per hour.

Conventional gearshift tractors are limited in drawbar pull by having fixed gear ratios and insufficient weight to use the maximum available drawbar pull. In these tractors increasing the horsepower of the engine will not increase the maximum drawbar pull of the tractor. A tractor with an engine that produces 150 horsepower, but that slips the tracks with an application of only 50 horsepower, obviously is wasting two-thirds of its power under maximum drawbar pull conditions—and you still have to buy fuel for the wasted power.

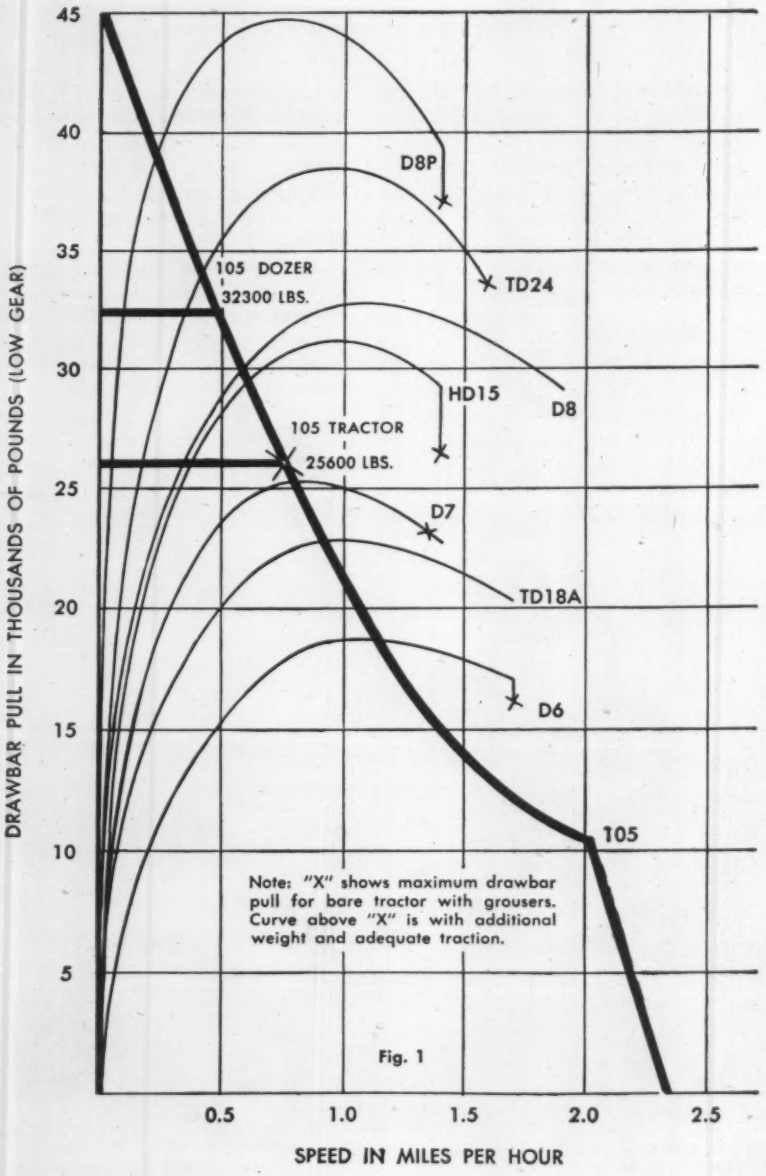


Fig. 1

PROPER BALANCE

In the Eimco Tractor the engine, torque converter, gear ratios and weight are properly balanced to obtain most efficiently all of the drawbar pull available in the tractor.

The curves (Fig. 1) show the drawbar pull in low gear of a number of popular models of tractors available today, as compared with the Eimco 105 Tractor in low speed range. The data on the competitive machines is from the manufacturers' published data and the University of Nebraska tests.

First, you will notice how the 105 torque converter drive smoothly balances the speed to the load conditions. Maximum drawbar pull or "push" is obtained when the tractor is standing still. On all of the tractors with conventional gearshift

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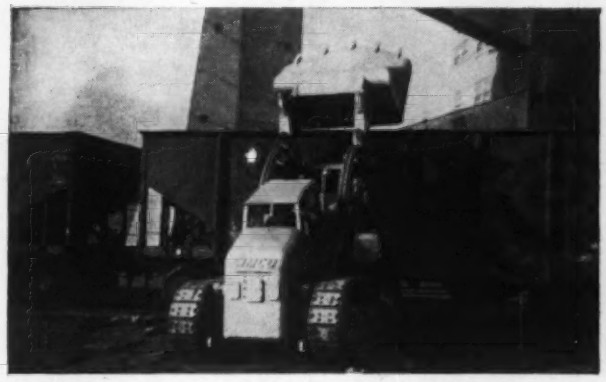
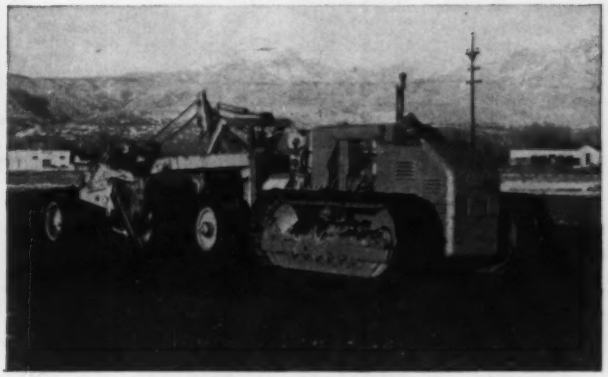
Eimco Tractor pulling sheepsfoot roller on airport tamping job.

Building breakwater in Syria. Ability to dig and carry with fast reversals make the Eimco popular.



High discharge loader attachment on Eimco Tractor loads iron ore into 11'0" high gondola.



Eimco Tractor handles scraper with complete visibility.

transmissions the drawbar pull falls off to zero as the engine speed is pulled down due to overloads. This means that just when you need the greatest push from the tractor when the heaviest loads are encountered at low speeds the conventional tractor will stall the engine. **It is impossible to stall an Eimco Tractor engine through the torque converter.**

You will also observe that the performance curve for the Eimco Tractor cuts directly across the curves for the other tractors. This shows how the balanced design of the Eimco produces more work at the lower speed under the hardest conditions than the heavy tractors, and more speed under the lighter work, all without gearshifting.

On these curves the "x" shows the maximum drawbar pull obtainable with the bare tractor with grousers. The curve shown above this "x" is only obtainable with additional weight and adequate traction.

The 105 bare tractor has a maximum drawbar pull of 25,600 pounds. When the bulldozer is added this increases to 32,300 pounds, and with further addition of weight **a maximum of 45,000 pounds drawbar pull can be obtained.**

As an example from the curve, the HD-15 bare tractor has a drawbar pull of about 26,500 pounds. This increases to about 31,200 pounds with added weight at the maximum torque output of the engine. Above this, additional weight would not help.

It is seen that the Eimco Tractor and bulldozer will produce a greater drawbar pull than any but the very largest tractors. The Eimco Tractor will do the tougher jobs easier and will push or pull greater loads with the advantage of lower costs and greater flexibility.

Here is a summary of what Eimco Tractor design does for you in terms of maximum drawbar pull in pounds per engine belt horsepower:

Eimco 105	**375**
HD-20	370
HD-15	250
D8 Pusher	238
D7	230
TD-18A	226
D6	220
TD-24	215
D8	178

The Eimco Tractor gives you the most effective application of engine horsepower for heavy, tough and rough jobs.

The University of Nebraska tractor drawbar tests have recognized the important advantages of a torque converter tractor drive. Their Test "H" determines the continuous rated load of a tractor.

In the case of standard tractors with conventional gearshifts this continuous rated load is taken as 75% of the maximum drawbar pull test load. However, the Nebraska tests allow a continuous rating of 100% of the maximum drawbar pull test when a hydraulic torque converter is used because the torque converter automatically loads the engine by controlling the travel speed of the tractor according to the load applied.

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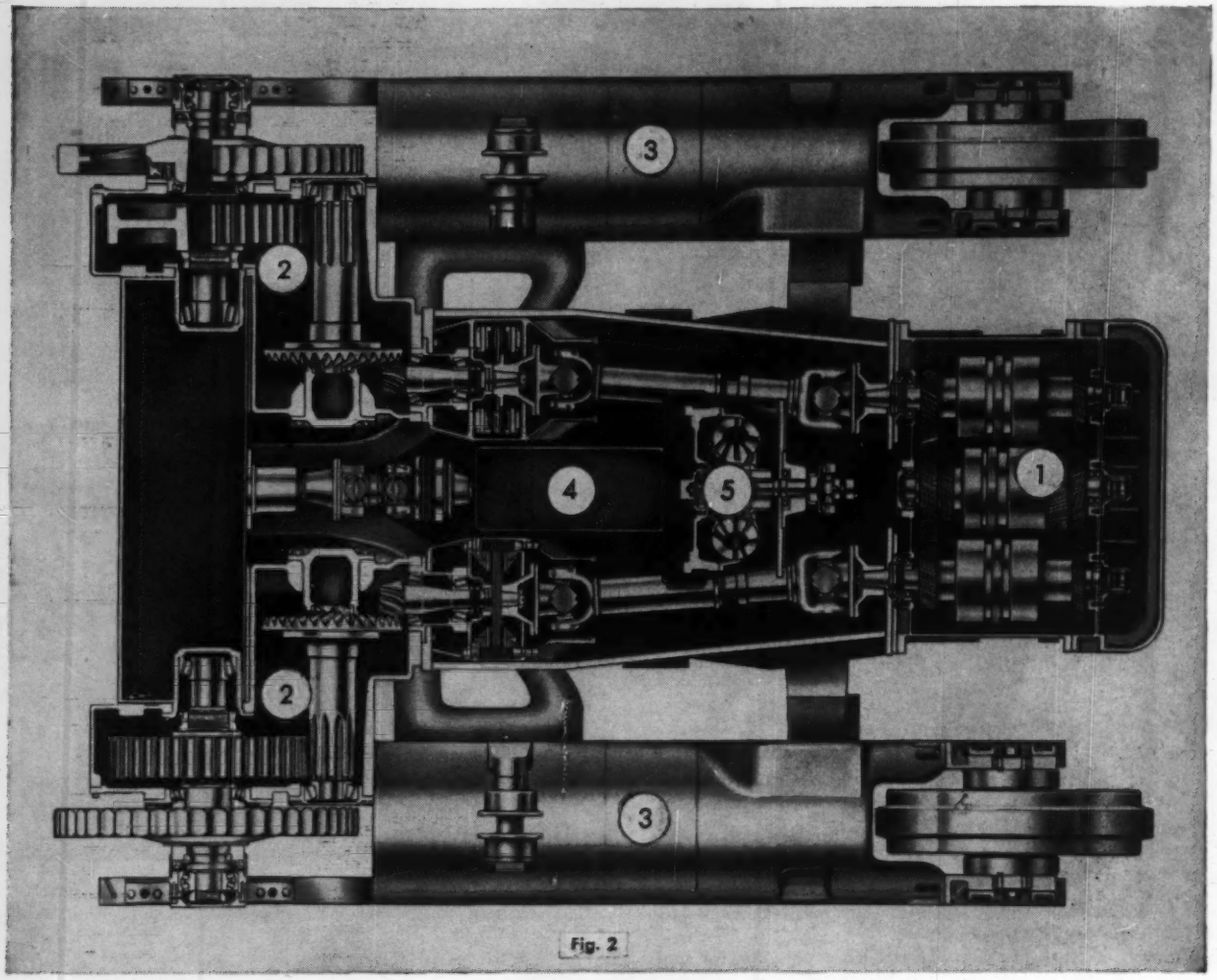

Fig. 2

Unit Construction for Easy Maintenance

1. **Transmission:** A complete self-contained unit which can be removed without disturbing other assemblies of the tractor.
2. **Final Drives.** Each final drive is a separate unit assembly which can be removed independently.
3. **Track Assemblies:** Easily disconnected from the final drives and main frame for removal as separate assemblies.
4. and 5. **Engine and Torque Converter:** The complete assembly can be removed as a unit or the torque converter can be removed alone without disturbing the engine or any of the other drive assemblies.

Each of these husky separate assemblies have been designed as a unit and built as a unit. This means not only simpler construction on the assembly line, but also reduces maintenance costs to a minimum.

If, for instance, the compact transmission requires maintenance it is a simple matter to remove the complete transmission assembly to work on it or to replace it with a spare unit. None of the other major components has to be disturbed. Compare this with servicing the master clutch or gearshift transmission on a conventional tractor.

If desired, **the transmission housing may be left in place and only the front cover removed exposing all of the gearing and clutch assemblies.** A complete gear and clutch assembly can be replaced by a mechanic in not more than three hours.

Final drives are also easily removed, repaired or replaced. Either the complete final drive assembly can be removed from the side of the machine or **the housing can be left in place and the final drive cover removed to expose all of the gearing.** Removal of the housing cover allows easy replacement of the complete bull gear and shaft assembly.

These features all mean less down time on the job. The tractor user will recognize that this unit design will save him money. Every

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margin of increased production will enable contractors to shave their bid prices and realize greater profits.

To meet competition every contractor will have to use the most efficient trouble-free equipment he can obtain.

Experience with over 120 of these tractors in the field has resulted in a machine that is now perfected and trouble-free. The first machines were put to work under the toughest conditions to find out the weaknesses and correct them as soon as possible. The first tractor was delivered to Geneva Steel Works of the U. S. Steel Corporation for digging out the solidified slag and molten metal in the repair of slag pockets in open hearth steel furnaces. This is the toughest kind of job under conditions of high temperatures, abrasive dust, steam and excessive strains. This first machine has now been in operation over 3,000 hours over the past eighteen months.

TOUGH TESTS

Other machines in the first lot were put to work under equally tough tests and unusual conditions. One was in the desert country of Arizona and another in the frigid regions of the Yukon.

Naturally there were bugs in the first machines and these showed up quickly under this tough shakedown work. Some of the troubles were due to insufficient metal in the castings or inadequate structural sections that were too light. For example, the main frame was originally a built-up welded section including ¼" plate webs. This frame developed trouble at an early stage and was changed to a hot formed section made from a single ⅝" plate, eliminating the welded joints and greatly increasing the strength.

As soon as any of these improvements were made, tractors in the field were changed by Eimco, even though the customer had experienced no difficulty.

Now that the original weak spots have been discovered and overcome, Eimco can claim less down time, lower maintenance costs and greater productive capacity than any tractor in its work class.

Simple Controls Mean Operator Comfort

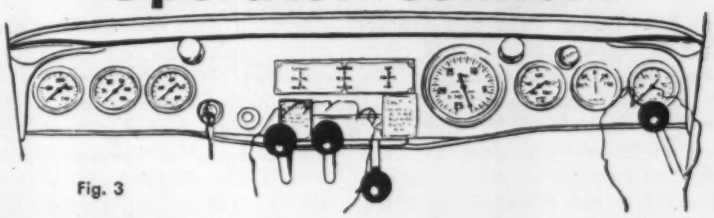

Fig. 3

The Eimco Tractor may be operated by one hand covering two small levers. Push both for forward motion, pull for reverse motion.

Each lever controls the track on its respective side. A twist of the wrist starts one track in forward motion and the other in reverse for a spin turn. Release one handle and it will automatically return to neutral for a gradual turn.

Attachments such as bulldozer or loader can be operated by the other hand.

There are no clutch pedals, no steering clutch levers, no master clutch control or manual gearshift lever.

Like your modern automobile, all the movements are performed without effort of the operator.

Change between low speed range and high speed range may be made at any time without stopping the tractor by actuating the separate small handle. Either track or both may be reversed instantly at any speed.

Spin turns of the tractor mean accurate close control of the dozer blade and time saved in maneuvering. **In narrow cuts the tractor can be turned around in its own length instead of having to back out.**

Operator Can See What He Is Doing

The operator of a tractor belongs up front where he can see what he is doing. Operating a tractor from the conventional rear position is like trying to drive an automobile from the back seat.

The up-front position of the operator in the Eimco Tractor is of particular importance in dozer work, shovel feeding, pushing and front end shovel loading. In these and many other operations it is imperative that the operator see what he is doing.

Dozing up to the top of a steep embankment is always more efficient if the operator can see the blade and has a tractor that will respond instantly to his touch, as in the Eimco Tractor.

Working in tight confined places close to buildings or other structures can only be efficient if the operator has good visibility. Many of you have seen gouges in brand new $800 tires because the tractor being used to push a scraper was operated from the back seat. **The Eimco Tractor eliminates cut tires,** double passes where one will do, and inefficient work because the operator can see what he is doing.

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Only the Eimco Tractor Gives You All These Features

1. **Rear Power Take-off:** Standard SAE Specifications for rear power take-off and drilling at the rear of the machine permit the mounting of standard auxiliary power take-off equipment. This shaft runs continuously with the engine and is not affected by track operation.

2. **Drawbar:** Special drawbars are provided in accordance with user's specifications. Standard drawbar is the short drawbar as shown. Drawbars are heavy duty steel construction in accordance with SAE Specifications for height and opening.

3. **Radiator and Fan:** Heavy duty oversize industrial type radiator has ample cooling capacity for long full load operation in desert temperatures. Blower fan is standard. Suction fan can be furnished optionally.

4. **Air Cleaners:** Oversize oil bath type air cleaners provide clean air for Diesel engine operation and require minimum of attention even in dry dusty working conditions.

5. **Power Unit:** The Diesel engine develops 120 horsepower at rated speed of 1800 RPM.

6. **Torque Converter:** Allison type for heavy industrial use. Designed to transmit all the power of the Diesel engine and matched to the engine. The torque converter cushions the load and reduces the shock to the tractor gearing. The converter automatically adjusts the speed to the load to give the greatest effort in the lowest speed range where it is needed.

7. **Seat:** A comfortable sponge rubber bucket-type seat provides a healthful alert posture for the operator. Movements required of the operator in order to efficiently work the machine are natural and easy.

8. **Auxiliary Equipment Controls:** Auxiliary controls are grouped at the right-hand of the operator. The upper handle controls the movement of the attachment, and the lower handle is provided if speed range selector is used. The handle with thumb ratchet button is the manual accelerator handle for fixed engine speeds.

9. **Tractor Controls and Instruments:** Tractor controls consist of three small levers immediately in front of the operator. Two of these operated with one hand are separate locomotion controls for the crawlers on their respective sides. They may be operated together or separately. Push for forward motion and pull for reverse motion, or one in each direction for spin turns. The third lever is the speed changing lever which may be moved from one position to another at any time.

In addition to these controls a foot accelerator is provided along with a handle throttle at the side and parking brakes are provided with ratchets and hand release.
Instruments: The instrument panel includes dial type instruments for converter oil temperature, converter oil pressure, drive oil pressure, engine oil temperature, ammeter, tachometer and hour meter, water temperature and engine oil pressure. There are also included two dash lights, a cigar lighter, starter switch and key-type switch.

10. **Front Power Take-off:** The front power take-off is furnished as standard equipment. Standard SAE drilling and mounting pads on the front of the tractor permit the use of any cable reel or hydraulic drive. Both front and rear power take-offs run continuously with the engine and do not stop when the main crawler transmission is operated.

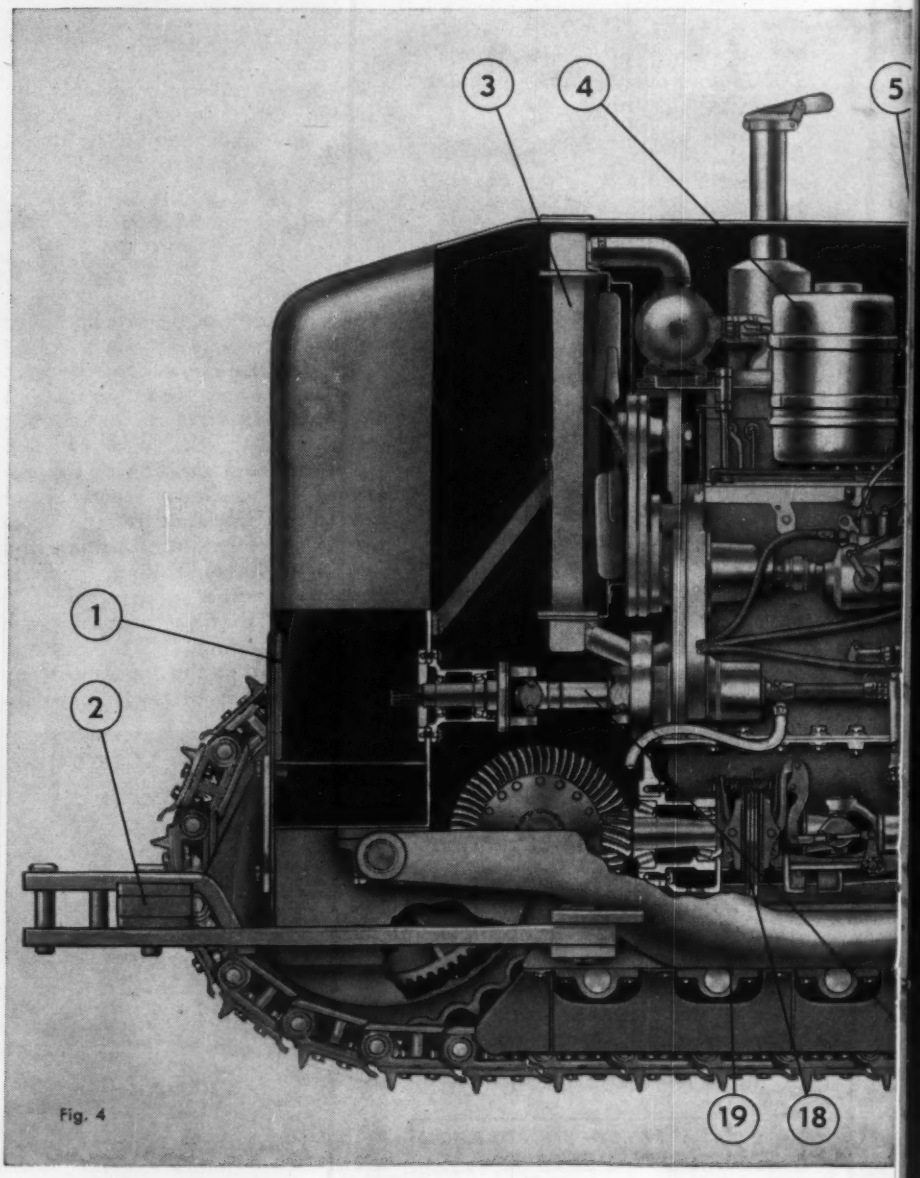


Fig. 4

The front power take-off drives through the torque converter and is subject to speed variations due to loads on the converter.

11. **Main Transmission:** Eimco's great new Unidrive achieves supremacy in engineering advancement of tractor power transmission.

This is a compact unit containing all of the gearing and clutches for speed changing and independent full power to each track, permitting reversal of one track and forward motion on the other at the same time, or moving both tracks in the same direction. This transmission permits instant reversal of the machine at any speed. It permits shifting from one speed to another in motion and under full load.

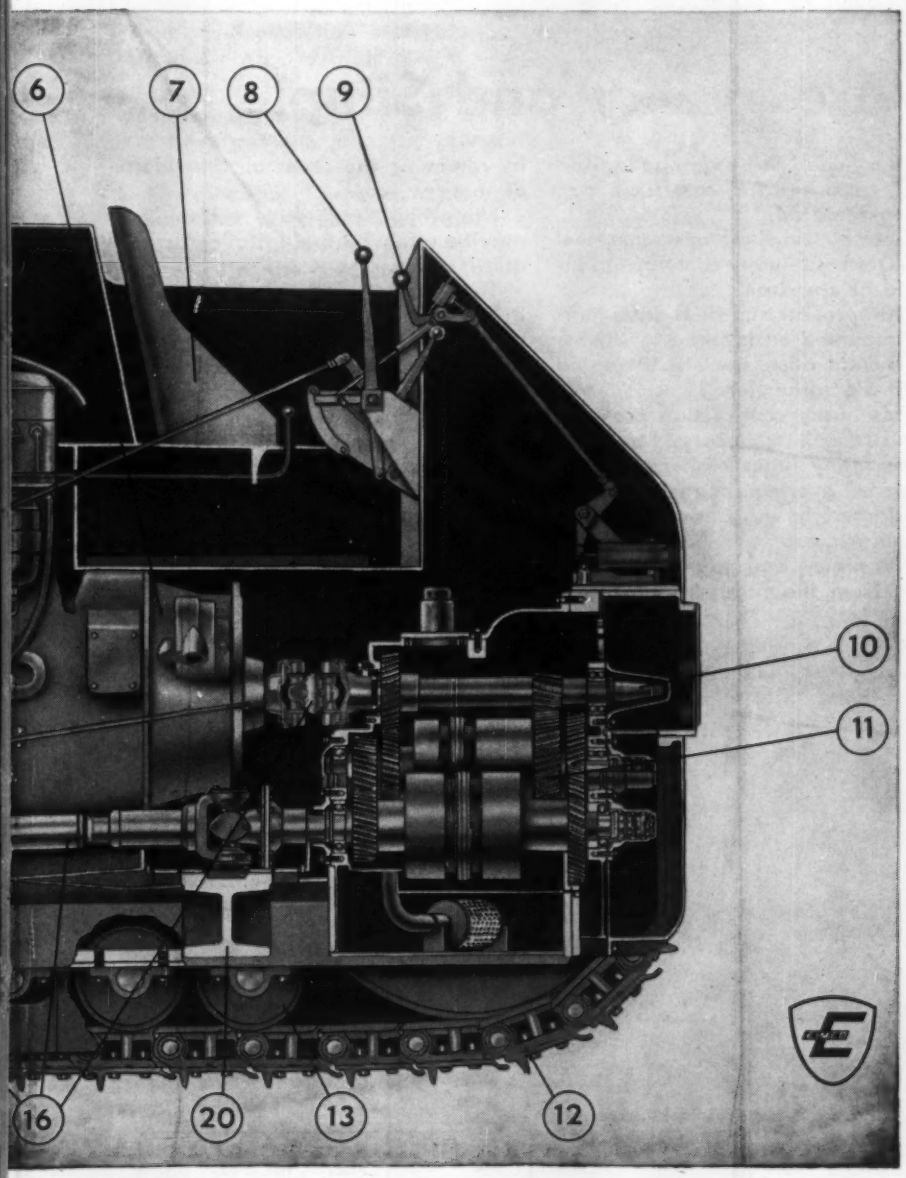
The Eimco transmission combines all of the best features of torque converter, constant mesh gearing and hydraulically actuated friction clutches with a sealed oil bath and pressure lubrication to all wearing parts.

The oil-cooled positive engagement clutches never need adjustment. The precision helical gearing is alloy steel, carefully heat treated and micro-shaved for years of quiet operation.

12. **Track:** The track for the Eimco Tractor is heavy duty all-steel construction using the best in alloy steel cast pads, forged links and extra heavy design for pins and bushings.

The special attention to the track and its component parts make it one of the real heavy duty features of the 105.

Conventional variations of track shoe widths and types are available.



13. **Track Rollers and Carrier Roller:** Strength in the track rollers is another outstanding feature of the Eimco. These rollers, like every other part in the tractor, have been designed to eliminate this weakness found in other types of crawler units.

Note:

(1) The roller itself is a one-piece alloy steel casting deeply heat treated for maximum wear;

(2) that the shafts are extra large in diameter, precision finished and hardened;

(3) that the tapered roller bearings are extra oversize and each fitted in its own steel bearing cage;

(4) seals are precision lapped for complete protection;

(5) large lubricant capacity for longer service.

14. **Electrical System:** The standard electrical system is 24-volts. For operation in warm climates, 12-volt electrical system may be used. The machine is equipped with heavy duty industrial type battery, starter and generator. Lights are available at extra cost and include two lights forward and two in the rear.

15. **Hydraulic System:** The tractor hydraulic system is low pressure (150 psi.) with the one system supplying the torque converter clutches, gearing and complete forced feed lubrication.

16. **Universal Joints:** Precision made oversize for long uninterrupted service.

17. **Main Frame:** Hot formed, deep frame section carries equalizer bar and permits the mounting of attachments inside the tracks on the main frame.

18. **Brakes:** A precision type air cooled disc brake is used on each drive shaft adjacent to the final drive housing. Brakes are independently actuated from the cab by means of foot pedals, and can be set for parking brakes.

19. **Diagonal Brace:** Hollow cast alloy steel diagonal braces are welded to the track frame. Correct alignment of the tracks is maintained by the low deflection under heavy loads.

20. **Equalizer Bar:** The heavy duty cast alloy steel equalizer bar permits the track to oscillate a full 12" without throwing strains into the main frame. This heavy beam-type construction is another instance of the superior construction and great strength.

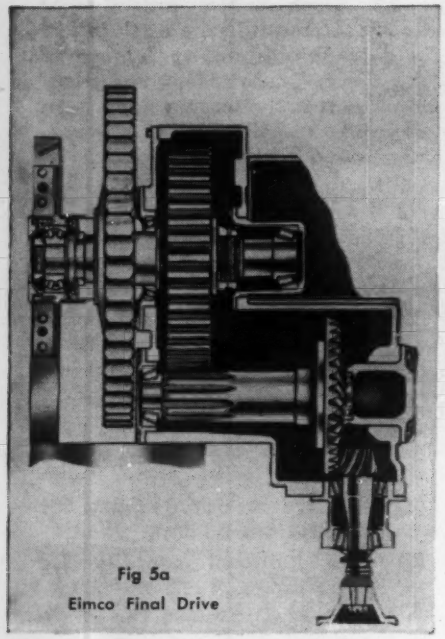


Fig 5a
Eimco Final Drive

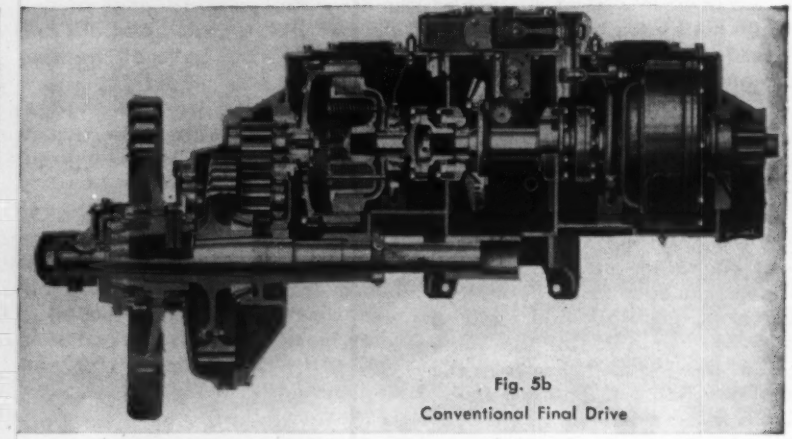


Fig. 5b
Conventional Final Drive

Comparison of a conventional Tractor Final Drive Assembly (Fig. 5b) with the Eimco Final Drive (Fig. 5a) reduced in the same proportions.

Final Drives are Husky and Simple

One of the previous troublesome weaknesses in tractors has been the final drive assembly. The Eimco final drive has been made strong enough to completely eliminate these troubles.

The obvious simplicity of the Eimco final drive allows stronger shafts and gears, larger bearings and greater strength throughout.

There are no clutches, brakes, springs, hollow shafts, or other gadgets in the Eimco final drive assembly.

The two final drive assemblies are identical, except that the gear housings are left and right-hand.

The Eimco sprocket shaft is solid and short for strength and rigidity.

All of the bearings are roller anti-friction type mounted in separate steel cages. This means that if a bearing should fail the final drive housing will not be damaged, and the bearing and cartridge are easily replaced.

Gear housings are alloy cast steel of extremely heavy construction instead of cast iron.

The sprocket and final drive gear are mounted on tapered serrations on a solid alloy steel heat treated shaft 5½" diameter.

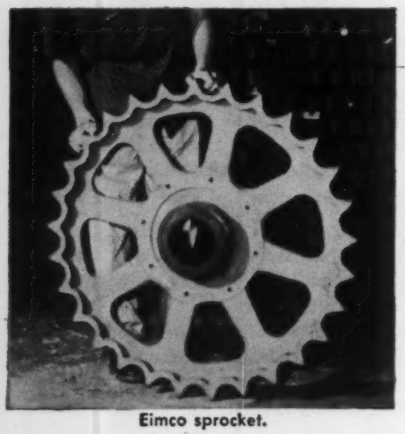
This husky construction provides the strength necessary for peak loads many times higher than the standard overload capacity usually considered in the design of other manufacturers.

The pinion and gear are removable from the final drive housing by removing the cover on the side of the gear case.

The whole final drive assembly may be removed and installed as a unit if necessary.

The sprocket is of cast alloy steel. It is much larger and heavier than sprockets on comparable machines.

The sprocket is heat treated in a special liquid flame hardening process that was developed specially for the selective heat treatment of these parts. This treatment gives the teeth of the sprocket an unusual hardness for long life and maximum toughness for protection against damaging abrasive rock and ore.



Eimco sprocket.

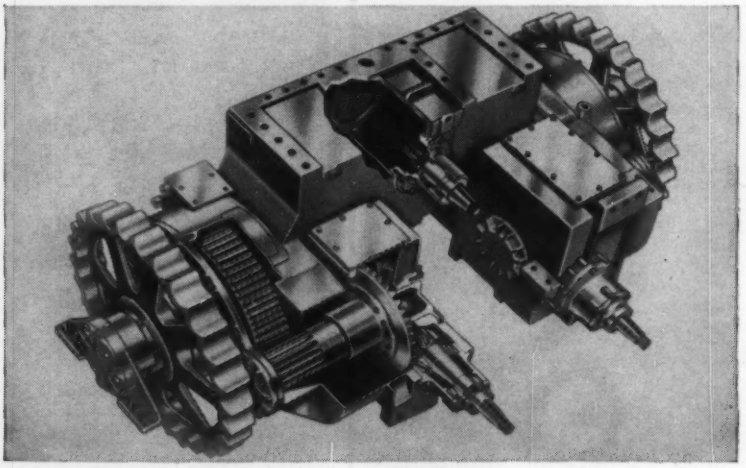


Fig. 6 Eimco dual final drives.

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Revolutionary New Transmission Design is Heart of Eimco Tractor

The Eimco transmission is the only tractor transmission that reverses without changing the direction of rotation of the gears.

Think what this means! Reversals of the tractor can be made instantly without the shock to the transmission that would come from gear reversal. All of the reversal of motion is absorbed smoothly and quietly on metal oil bath clutch plates. All of the clutches and gears for changing speed or reversal of direction are enclosed in this one compact housing.

The tractor transmission is by far the simplest and most fool-proof of any ever built. Every gear is in constant mesh, (there are no sliding gears) and all gears and clutches run in a bath of cooled oil.

This unique transmission (patents pending) is the supreme engineering advancement of tractor power application.

The all-metal clutches never need adjustment. A constant even clutch pressure is maintained during the entire life of the clutch.

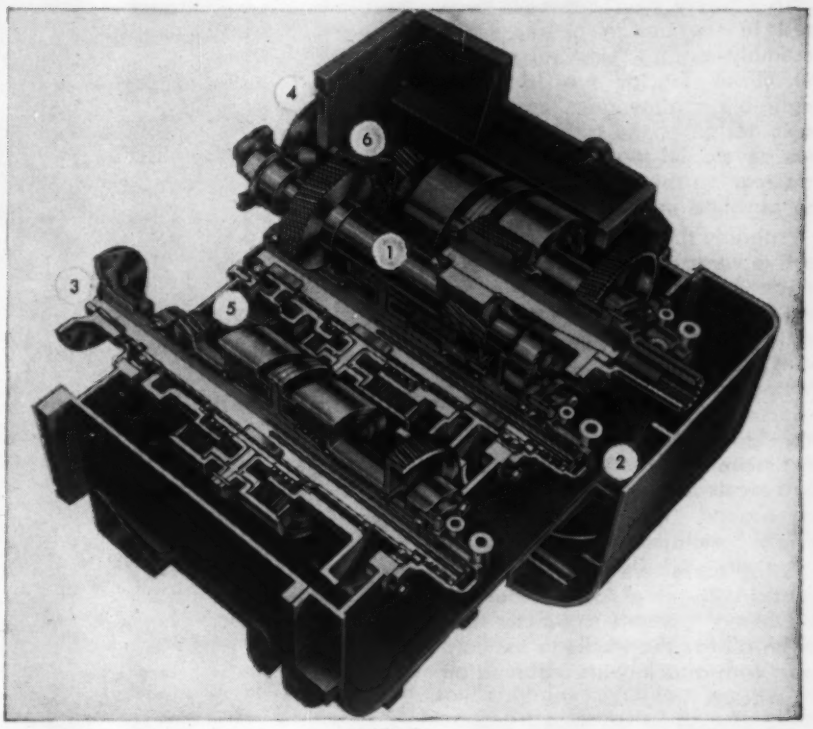


Fig. 8

Eimco Unidrive Transmission with gears that never reverse rotation and clutches that never need adjusting.

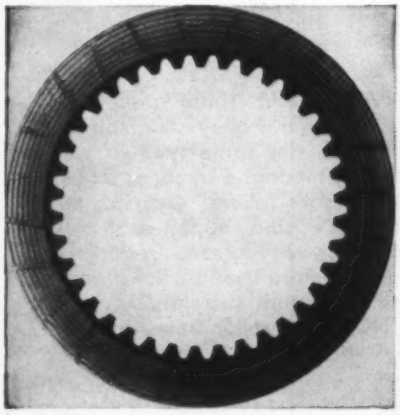


Fig. 7
Clutch plate after 2000 hours.

The photo (Fig. 7) which has not been re-touched in any way shows a clutch disc removed from one of the tractors after it had been in operation over 2,000 hours of heavy service. The clutch disc shows little, if any, wear and the rubber stamped part number is still visible on the face of the disc. The circular and radial grooves seen in the photo provide a full bath of lubrication across the clutch face at all times.

The shaft arrangement in the transmission is shown in Figures 8 and 9. Shaft #1 is the power input shaft connected directly to the torque converter driving from the Diesel engine. This shaft turns constantly while the engine is running. Shafts #3 and #4 are the individual drive shafts to each of the final drives. These shafts may be independently reversed so that either track may be driven forward or reverse for spin turns.

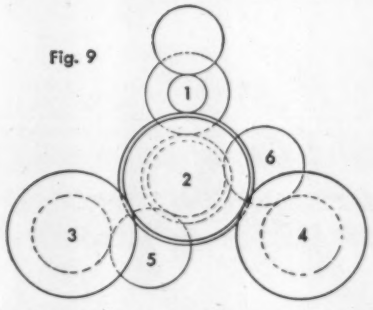
All of the gears and shafts are alloy steel with gear teeth microshaved for years of quiet operation. Bearings are of oversize design and anti-friction throughout.

For maintenance the complete transmission unit can be easily removed and replaced as an assembly without disturbing any other part of the tractor. If desired, only the front cover may be removed leaving the transmission case in place so that the individual clutch shaft assemblies may be repaired or replaced.

Gearing is all on parallel shafts without any highly stressed planetary and sun gear construction.

The Eimco transmission is undoubtedly the finest on any tractor and is years ahead in design for simplicity of control and ease of maintenance.

Fig. 9



Parallel shaft gear arrangement of cutaway shown in Fig. 8.

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New Track and Roller Design Eliminates Major Tractor Trouble Spots

An entirely new approach was used in the design of the track assembly so that this vital part of the Eimco Tractor would have negligible maintenance cost. The basic design of the tractor support was developed to reduce the wear and tear on the track assembly to the absolute minimum.

Probably the main reason for excessive wear of the tracks and rollers on conventional tractors is that it is necessary to drag one track while turning. **The Eimco Tractor turns with both tracks in motion** by driving one track forward and one reverse so that there are no abnormal side loads and excessive wear on the track parts. **The Eimco Tractor swivels to turn** instead of limping around "with one foot dragging".

Both tracks are always in full contact with the ground because of the **heavy pivoted equalizer bar** which allows the tracks to oscillate even with attachments mounted on the tractor.

The weight of the Eimco Tractor and its attachments is evenly distributed full length of both tracks so that there are no severe overloads at any point along the track.

The heavy cast steel hollow section diagonal braces resist side loads on the tracks, form the pivots for track oscillation and maintain accurate track alignment.

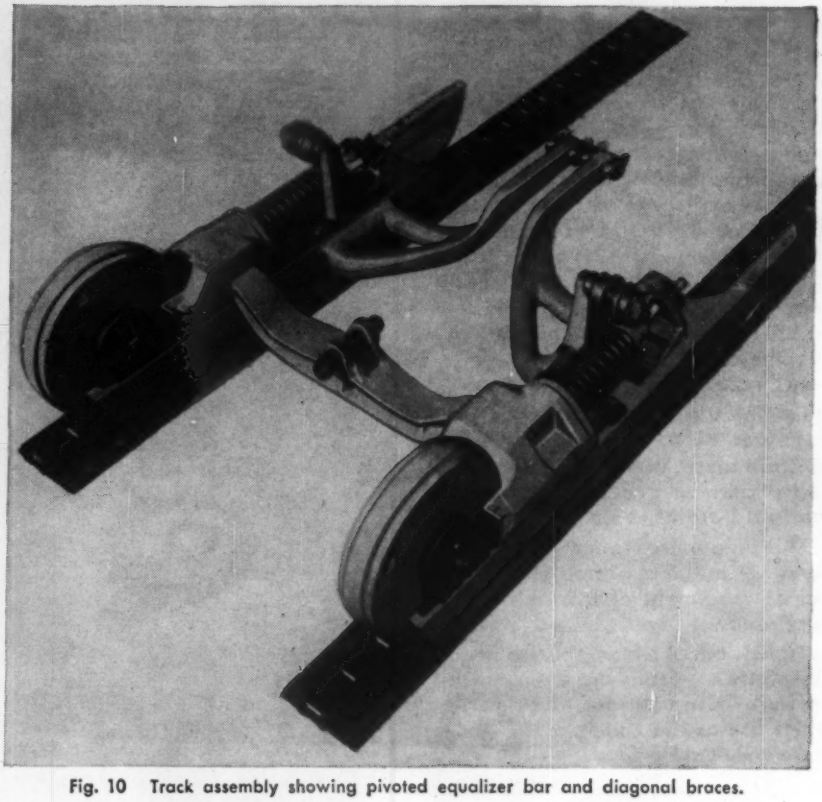


Fig. 10 Track assembly showing pivoted equalizer bar and diagonal braces.

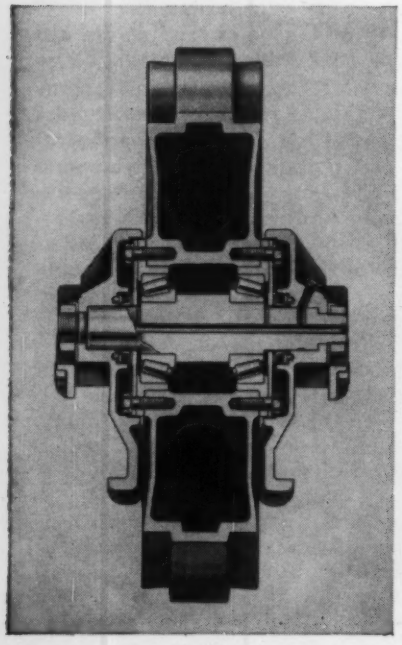
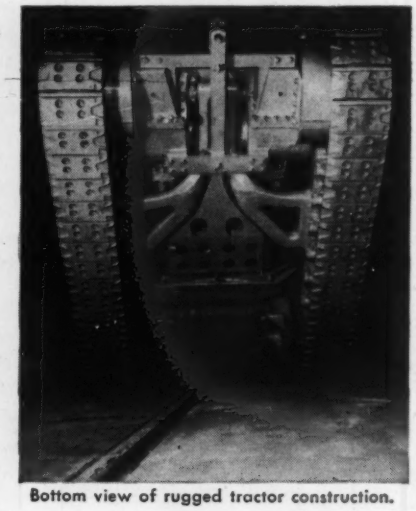


Fig. 11
Cutaway view of front idler assembly.

All of the track parts are designed for maximum strength from forged or cast heat-treated alloy steel. Comparison with conventional tractors will show the oversize strength of these parts.



Bottom view of rugged tractor construction.

Front Idlers: These are of solid web one-piece alloy steel construction with the same type of roller bearing mounting in cages as used in the track rollers. Oversize steel shaft, precision lapped seal plates and bellows-type seals in alloy cast steel caps are used for long service and maximum strength.

NOT ONE roller bearing assembly of the Eimco track roller or front idler has failed, although Eimco tractors have operated in the excessive temperatures of hot desert sands and open hearth steel furnace slag pockets, the frigid areas of the Yukon and the mud and slime of Eastern Seaboard tornado areas—building breakwaters in Syria, highways in tropical South America, clearing jungles in Africa and digging tunnels in Quebec.

Eimco has long been recognized as a leader in the development of electric furnace alloy cast steel with

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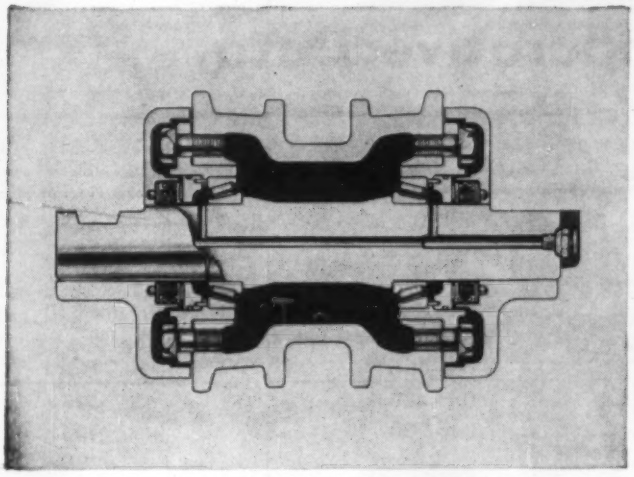
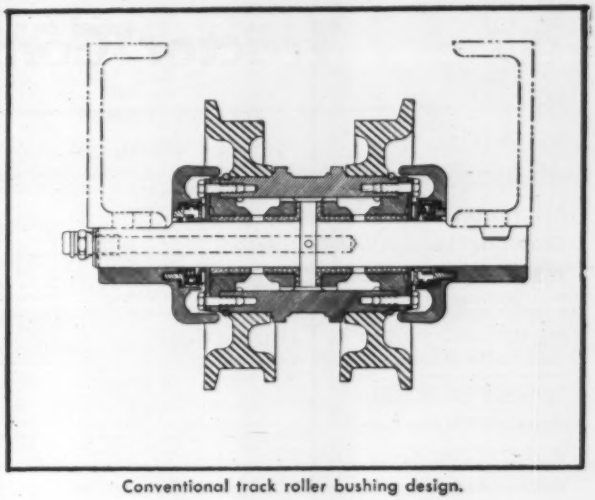


Eimco all steel track roller assembly.



Conventional track roller bushing design.

Fig. 12

special emphasis on the toughness, abrasion resistance and fatigue strength necessary to make steel parts last longer. This knowledge has been built into all the castings that go into the Eimco Tractor.

Track Rollers: Everything possible has been done to design for strength and endurance so that the **105 can operate without failure from track rollers.** The roller is made of a one-piece alloy-steel casting specially liquid salt flame hardened for maximum wear. The track roller shafts are extra large diameter, also of heat treated alloy-steel.

Tapered roller bearings with high capacity to give exceptionally long life are used in the track rollers. The bearings are each fitted in a steel bearing cartridge. This cartridge provides a perfect fit at all times for each bearing, allows easy replacement in the field if necessary and prevents damage to the track roller.

The Eimco is the only tractor with track roller assemblies mounted on roller bearings in separate cartridges. This expensive construction prevents deformation of the bearing seat due to loads on the track roller. Also, the roller bearings do not develop play and looseness so that the important sealing surfaces are maintained. This means that the lubricant will not leak. The large lubricant reservoir in the roller provides excellent bearing protection with long operation between greasings.

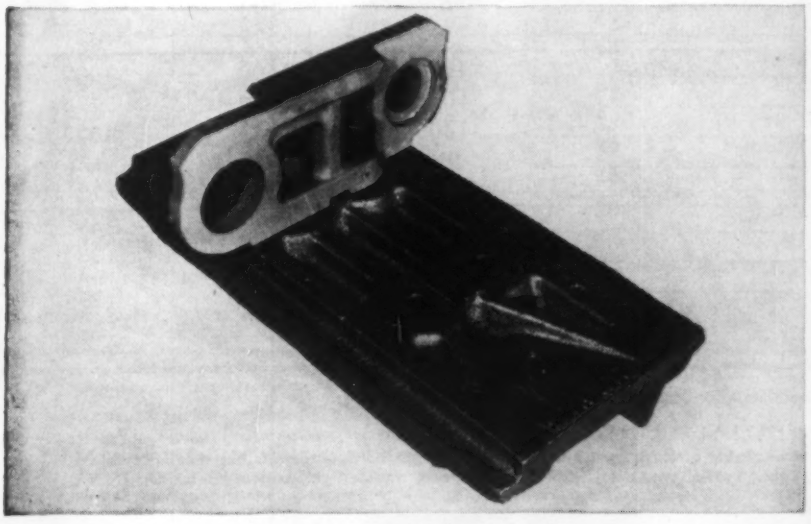
Shown in Fig. 12 is a comparison of the Eimco track rollers with the standard track roller assembly of a popular make of tractor. Note the simple sturdy construction with its large lubricant storage.

This is typical of the improved Eimco design that means better life, longer intervals between service periods, less maintenance and more dependability.

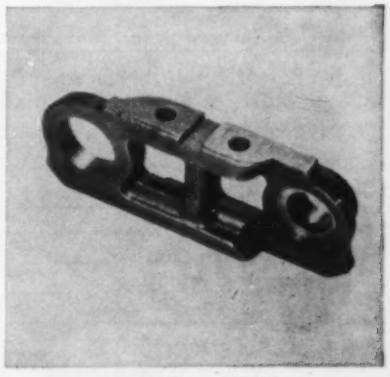
Track Link Assemblies: Heavy alloy-steel forgings specially heat-treated are used throughout. Track pads are salt bath heat-treated alloy steel with or without grousers. The bolting face of the track pads is milled and a **keyed lock** locates the pad on the track link **to take all of the strain and shear off the track bolts.** Track links are machined on a special five-position, double spindle boring mill developed by Eimco for perfect alignment and accurate fit of the links.

Track pins and bushings are also high strength steel with special heat treatment.

Conventional types of track shoes in widths up to 30 inches are available for the tractor.



Track shoe and link keyed assembly.



Forged alloy steel link.

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Tractor Comparative Data

	EIMCO 105	CAT D6	CAT D7
Belt Horsepower (Sea Level)	120	85	108
Drawbar Horsepower (Sea Level)	Torque Conv.	75	90
Weight of Tractor Only, Lbs. (Std.)	27,000	17,340	26,325
Drawbar Pull, Lbs. (Hi Gear)	15,800	3,620	4,840
Maximum Drawbar Pull, Lbs. (Lo Gear) with adequate weight and traction	45,000	18,700	25,250
Speed, FPM (Hi Gear)	0 to 480	580	528
Speed, FPM (Lo Gear)	0 to 200	150	123
Width of Std. Track Shoe	24	16	20
Width Max. Shoe With Wide Ga. and Dozer	24	20	22
Length of Track on Ground (Center of Sprocket to Center of Idler)	95	85¾	94⅜
Area of Ground Contact, Sq. In. (Std. Shoe)	4,560	2,744	3,775
Area of Ground Contact, Sq. In. (Max. Shoe)	4,560	3,430	4,153
Unit Pressure on Tracks, psi. (Std. Shoe, Tractor Only)	5.92	6.32	6.97
OVERALL DIMENSIONS (INCHES):			
Length	151-5/16	147-7/16	167⅜
Height	78	75⅜	81¼
Width (Wide Gauge, Std. Track Shoe)	98	94½	97
Track Gauge (Wide)	74	74	74
Ground Clearance	11	12½	15½
No. of Track Rollers (Each Side, Standard)	6	6	5
Track Roller Diameter	8¾	8	8½
Track Roller Shaft Diameter	2⅝	2¼	2½
Track Pin Bushing Diameter	2-7/32	2⅛	2⅝
Track Pin Diameter	1-17/32	1-7/16	1¾
Track Shoe Bolt Diameter	⅝	9/16	⅝
Height of Grouser	2¾	2⅛	2⅜
Pitch of Track Link	7½	6¾	8
Sprocket Pitch Diameter	34.9	30½	33¼
Type of Engine	4 Cy. Cummins	4 Cy.	4 Cy.
Number of Cylinders	4	6	4
Bore	5⅛	4½	5¾
Stroke	6	5½	8
Piston Displacement, Cu. In.	495	525	831
RPM Governed at Full Load	1800	1600	1000
RPM at Max. Torque	1050	1000	775
Piston Speed (FPM)	1800	1467	1333
Cooling System (U. S. Gallons)	9½	14½	17
Crankcase (Quarts)	20	22	22
Transmission (Quarts)	128	42	43
Final Drive (Each-Quarts)	68	9.5	23
Fuel Tank (U. S. Gallons)	60	48	70
Control	Hyd.	Mech.	Hyd.-Mech.
Price, F.O.B. Factory	$15,950†	----------	----------

Notes: Above is from Manufacturers' data or University of Nebraska Tests.

All dimensions are in inches except as noted.

Auxiliary equipment available at extra cost: Scrubber for underground operation, ether starting or glow plugs, air starting, lights, special drawbars, winter enclosed cab, trouble light, bulldozers, loaders, hoists and winches.

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Tractor Comparative Data

CAT D8	A-C HD-15	A-C HD-20	I-H TD-18A	I-H TD-24	Other	Other
185	124	175	102	180	.....	.....
150	109	T.C.	89	148	.....	.....
38,155	27,850	41,800	23,475	39,245	.....	.....
7,580	5,840	35,000	4,870	4,892	.....	.....
32,900	31,200	65,000	22,850	38,600	.....	.....
510	510	0 to 616	502	686	.....	.....
167	123	0 to 264	150	141	.....	.....
22	20	24	20	22	.....	.....
24	24	28	22	24	.....	.....
99¾	96-5/16	106⅝	84⅝	104½	.....	.....
4,389	3,853	5,118	3,385	4,598	.....	.....
4,788	4,623	5,971	3,724	5,016	.....	.....
8.69	7.23	8.01	6.94	8.15	.....	.....
192⅛	172-13/16	190¾	158¼	182¼	.....	.....
86	83-15/16	94-5/16	79	89⅜	.....	.....
103¾	96¾	109¼	94¼	102	.....	.....
78	74	84	74	80	.....	.....
10½	14⅜	16⅛	14	13⅞	.....	.....
6	6	6	5	6	.....	.....
8½	8	10	10	9	.....	.....
2¾	2⅛	2½	*	*	.....	.....
2¾	2½	2⅞	2⅜	2⅞	.....	.....
1¾	1¾	1⅞	1⅝	1⅞	.....	.....
¾	⅝	29/32	⅝	¾	.....	.....
2-19/32	2-19/32	2¾	2¼	2¾	.....	.....
8	7⅞	9	7½	8½	.....	.....
36¼	34	39	35	39.6	.....	.....
4 Cy.	2 Cy.	2 Cy.	4 Cy.	4 Cy.	.....	.....
6	6	6	6	6	.....	.....
5¾	4¼	5	4¾	5¾	.....	.....
8	5	5.6	6½	7	.....	.....
1246	426	660	691	1091	.....	.....
1200	1600	1700	1350	1375	.....	.....
800	900	800	800	800	.....	.....
1600	1333	1588	1463	1604	.....	.....
25	11¾	15	26	37	.....	.....
34	20	30	26	30	.....	.....
41	34	39	30	48	.....	.....
20	22	30	5½	9	.....	.....
69	91½	120	60	85	.....	.....
Mech.	Hyd.	Hyd.	Mech.	Hyd.	.....	.....
.....	.....	.....	.....	.....	.....	.....

*Signifies information not available.

†Standard equipment includes: Electric starting, heavy duty crankcase and track guards, muffler, heavy duty air cleaner, heat-treated track shoes, front and rear power take-offs, rain cap, sponge rubber seat, large front idlers, all steel transmission and drive cases, torque converter, hour meter, tachometer, cigar lighter, dash lights, key lock switch, complete instruments for converter, engine and drive oil pressure and temperature, ammeter, water temperature gauge, and drawbar.

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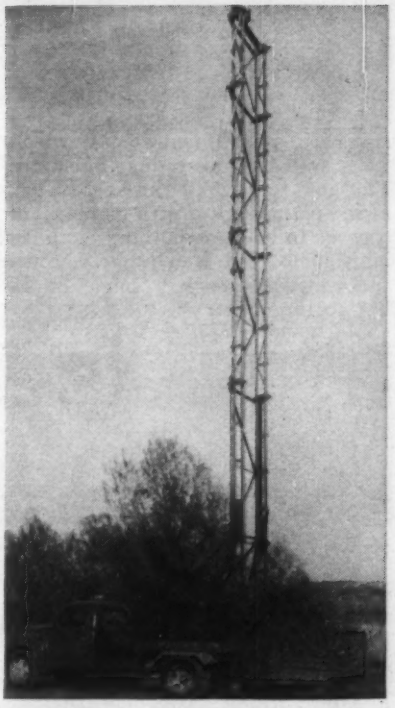
Johannesburg, South Africa

Hoisting Tower Folds For Transport



A new hoisting machine, called the Pelican, is designed for mounting on a contractor's own "retired" truck and driven to the job site.

The 2,000-lb capacity hoist is self-erecting to a 42 ft unloading height in only 23 min and additional 5 and 10-ft sections can be added as needed. The steel tower folds like a jack-knife for easy transport and can be moved about the job to handle lifting and loading operations wherever required.

The Pelican is available in 12 and 21-hp models, both powered by an air-cooled Wisconsin gasoline engine. The platform is removable and may be replaced with a self-dumping concrete bucket, available as optional equipment. A Chicago boom, for mounting on the platform is also offered as an accessory item. Buck Equipment Corp., 205 Butler St., Cincinnati 2, Ohio.

Four-place Exec Plane Gets "New Look"

The 1955 Beechcraft F35 Bonanza —sixth version of the all-metal executive aircraft—cruises at 184 mph, has a top speed of 194 mph and a range of 775 mi. It is powered by a 205-hp Continental engine with a 225-hp Continental offered as optional.

Many improvements have been added to the plane, including a "new look" with the addition of a third window on each side of the cabin. Not only do the new windows permit 20% more rearward visibility for the pilot, they provide greater visibility for the passengers and add a more spacious appearance to the cabin.

Allowable airspeed for gear and flap extension has been increased in the new F35 by strengthening the landing gear and adding nose ribs to the flaps. This will increase the plane's safety characteristics, particularly during instrument conditions, and will also enable more rapid slow-down from cruising speed in normal landing approaches.

Floorboards have been padded with synthetic sponge rubber to provide even greater soundproofing, and the exterior paint design provides for a white top that reflects heat. The map pocket on the pilot's side has been relocated for better accessibility and improved appearance.

Auxiliary wing tanks, offered as optional equipment, replace auxiliary

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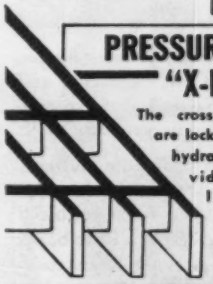

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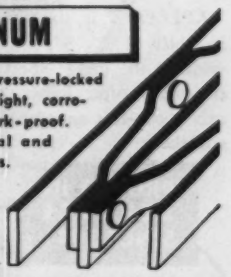

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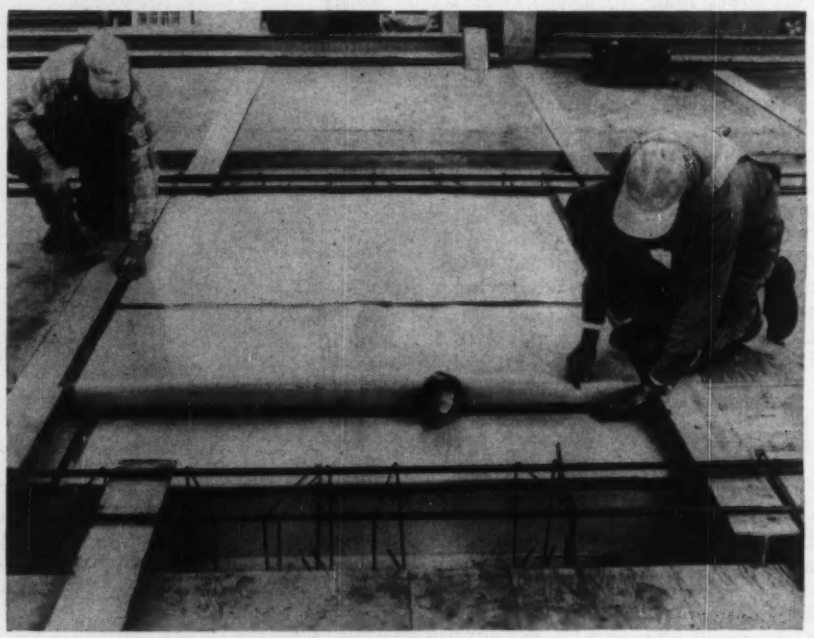
baggage compartment tanks which were available on earlier Bonanzas. The new fuel tanks, carrying 10 gal. each, permit a greater volume of baggage to be carried. They are filled individually but are interconnected and gauged through a single intake line to the engine.

Designed specifically for business and executive use, the new F35 is said to give the greatest speed and range of any single-engine plane of its type. Further it is reported to be economical to operate, giving up to 19.9 miles per gallon of gas. BEECH AIRCRAFT CORP., WICHITA, KAN.



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PUBLICATIONS

Concrete vibrators—Circular No. 43 contains a description of each of the White concrete vibrator models. It illustrates some new models recently added to the line and also describes the company's concrete grinders and rail grinders. A second bulletin, circular No. 45, describes the company's new concrete troweler equipped with retractable wheel. Full details are given. WHITE MFG. CO., ELKHART, IND.

Jeep engines—A new brochure describes Power Giant industrial engines —Model L-4 "Jeep" and Model F-4 "Hurricane." Complete engine details are given for both the L and F head designs including power, torque and fuel curves at various rpm. Also included are special features, installation diagrams and other general descriptive material. INDUSTRIAL ENGINE DEPT., WILLYS MOTORS, INC., 1115 N. COVE BLVD., TOLEDO 1, OHIO.

Soil sampling rigs—Bulletin No. 28 describes the Acker line of portable powered soil sampling rigs known as Models RGT and RG. Both models feature a hoisting winch for jetting and driving pipe or piles and a lever controlled positive displacement pump is also included on either model. The 4-pager contains brief specifications on both units. ACKER DRILL CO., 725 W. LACKAWANNA AVE., SCRANTON, PA.

Controls for liquids and gasses—A revised edition of the Simplex general catalog of measuring and control equipment supersedes an earlier volume produced in 1950. It presents a compilation of Simplex equipment for the measurement and control of liquids and gases. Illustrated are many types of controls, gages, manometers, recorders, meters, valves, venturi tubes, etc., all applicable for water and sewage works, power and processing industries. Bulletin 004. SIMPLEX VALVE & METER CO., 68TH & UPLAND STS., PHILADELPHIA 42, PA.

Aluminum duct systems—A new booklet called "The Design of Aluminum Duct Systems" has been produced to give engineers and contractors practical and authoritative data on friction losses in air conditioning duct systems. The 32-page technical booklet includes two friction loss charts based on exact, experimentally determined aluminum roughness characteristics and graphical solutions for determining friction losses through fittings.

Charts for calculating required air volumes and rates of heat loss for ducts are also contained. KAISER ALUMINUM & CHEMICALS SALES, INC., 1924 BROADWAY, OAKLAND 12, CALIF.

Sprocket puller—The new OTC Sprocket Puller Manual No. SP-54 describes and illustrates portable hydraulic sprocket pullers and installing sets in both 50 and 100-ton capacities. OWATONNA TOOL CO., 370 N. CEDAR ST., OWATONNNA, MINN.

Heating catalog—Catalog SC-5 is a revised edition of the manufacturer's earlier issue and contains information on boiler water feeders, make-up boiler feeders for receivers, low water fuel cutoff, pump controllers, pressure relief valves, temperature relief valves, float-operated switches, small profiles, etc. In addition to the product listing the catalog covers many special adaptations and components that have been developed over the years. Parallel data on the different models is arranged in tabular form for ready comparison. MCDONNELL & MILLER, INC., 3500 N. SPAULDING AVE., CHICAGO 18, ILL.

Charting—A 16-page brochure describes the Chart-Pak method of prefabricated charting of statistical charts, organization charts and office layouts. The brochure contains material explaining the prefabricated method of charting plus facsimilies of the pressure-sensitive components. CHART-PAK, INC., 100 LINCOLN AVE., STAMFORD, CONN.

Valves—A 12-page bulletin in color describes this company's most recent development in gate valves, square bottom valves, check and air release valves and hydrants. Accessories including gearing combinations, bypasses, and electric, air and cylinder operation are included. "O" ring seals, Ring Tite and mechanical joints as applied to valves and hydrants are also illustrated and described. Bulletin No. M-2. THE RENSSELAER VALVE CO., TROY, N. Y.

Spray gun motion study—"Spray Gun Motion Study" is the title of the new booklet designed to aid in the production of high quality finishes at a minimum cost with less fatigue. The booklet includes a description of the procedure in spraying various surfaces which are encountered in spraying operations. DEVILBISS CO., 300 PHILLIPS AVE., TOLEDO 1, OHIO.

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A flick of the finger and you get a powerful response from the Davis Loader. It's ideal for hundreds of industrial jobs that require a loader that will "go all the way." Its quality, but rugged construction, is built to take the licks expected of this type of equipment, and at the same time its exclusive rubber mounting and "shock slots" absorb the shock load on the tractor. It has down pressure, *plus many other top features.* See it at your dealers...or send coupon for literature.

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"GO-ANYWHERE" TRANSPORTATION

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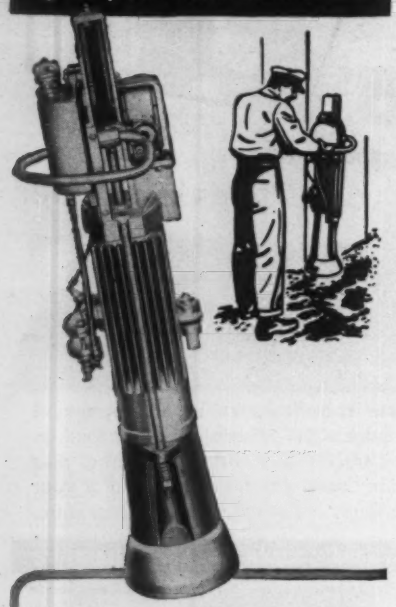
For the LOW BID on any job, figure your costs with BARCO



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- Better work! Easy to meet specifications calling for 95% to 97.5% (modified Proctor) compaction.
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- Faster compaction! 20 to 30 cu. yds. per hour — day in and day out.
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Barrington, Illinois

Ask for Catalog 621

MEN AND JOBS

Richard L. Hearn Appointed Chairman of Ontario Hydro

Richard L. Hearn has been appointed chairman of the Ontario Hydro-Electric Power Commission. He succeeds Robert H. Saunders, who died last month in a plane crash.

Hearn has been chief engineer of the commission for the last eight years and was recently awarded the Julian C. Smith Medal of the Engineering Institute of Canada "for achievement in the development of Canada."

Under his direction the commission has spent nearly $1 billion in capital expenditures. Hearn is now actively exploring the possibilities of power from atomic energy and is a director of Atomic Energy of Canada, Ltd. He has played a leading role in the negotiation of treaties with the United States for power development at Niagara Falls and on the St. Lawrence River.

Hearn is a native of Toronto and joined the commission shortly after he received his civil engineering degree from the University of Toronto in 1913. He left OHEPC in 1921 to become assistant chief engineer for Washington Water Power Co. in Spokane, but returned to the commission in 1934 as chief engineer. During the war, he was loaned to the Canadian government for construction of the wartime synthetic rubber plant, Polymer, at Sarnia, Ontario. Later, he served in Washington, D. C., as Canadian advisor to the public utilities division of the joint U.S.-Canadian production and resources board.

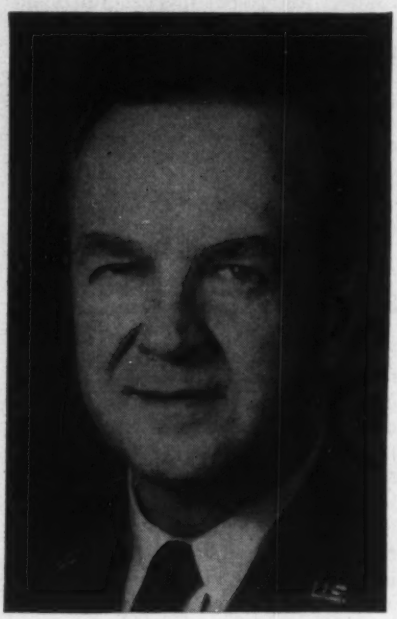
Now 64, Hearn had hoped to retire shortly and devote his time to consulting work. It is generally expected, however, that he will remain in his new post until the St. Lawrence Power Project is completed.

Col. A. E. Stoltz Directs Air Force Academy Project

Col. Albert E. Stoltz became director of the Air Force Academy Construction Agency in Colorado Springs, Colo., last week. He succeeds Col. Leo J. Erler, who will remain associated with the academy construction as a liaison officer in Washington, D. C., until his retirement in April.

The agency was created last June and is responsible for direction of design and construction of the new Air Force Academy.

Since his graduation from West Point in 1932, Col. Stoltz has been primarily associated with military construction engineering. After working on the construction phase of many major airbases in the United States, he was assigned as Assistant Chief of Staff for Installations for United States Air Forces in Europe. Later he became Deputy Director of the Joint Construction Agency in Paris.



Col. A. E. Stoltz

Col. Stoltz was awarded the rank of Chevalier in the French Legion of Honor for his work in the construction of air bases in France.

Clarkeson Engineering Co. Appoints Resident Engineer

Frank L. Holloway has joined the Clarkeson Engineering Co., Boston, Mass., as resident engineer in the Maryland area, with headquarters presently in Salisbury, Md.

In the early 1950's, Holloway spent nearly two years on air base construction in French Morocco. There he became construction manager in charge of field operations for Porter, Urquhart & Bevan and Skidmore, Owings & Merrill, joint venture architect-engineers.

During the 25 years he has spent in engineering and construction, Holloway has specialized in concrete and asphalt construction, and in grading and soil problems. He spent many years with the Bureau of Public Roads on highway construction, has served as chief of the Civil Aeronautics Administration's Paving Division, and engaged in highway, street and reservoi

construction for Warren Brothers Company. In 1950-51, he handled the heavy equipment phase of the secret atomic tests at Eniwetok Atoll.

Holloway is a civil engineering graduate of the University of Maryland.

Men and Jobs Briefs . . .

• **Careers**—Corps of Engineers' **Col. Philip Y. Browning,** formerly commander of the 36th Engineer Combat Group in Korea, replaces **Col. Jack. L. Coan** as executive officer of the Missouri River division office in Omaha—Coan has been assigned to the Far East . . . **N. A. Staples,** assistant chief engineer, leaves the Pennsylvania Department of Highways to become associated with the Florida Turnpike Commission.

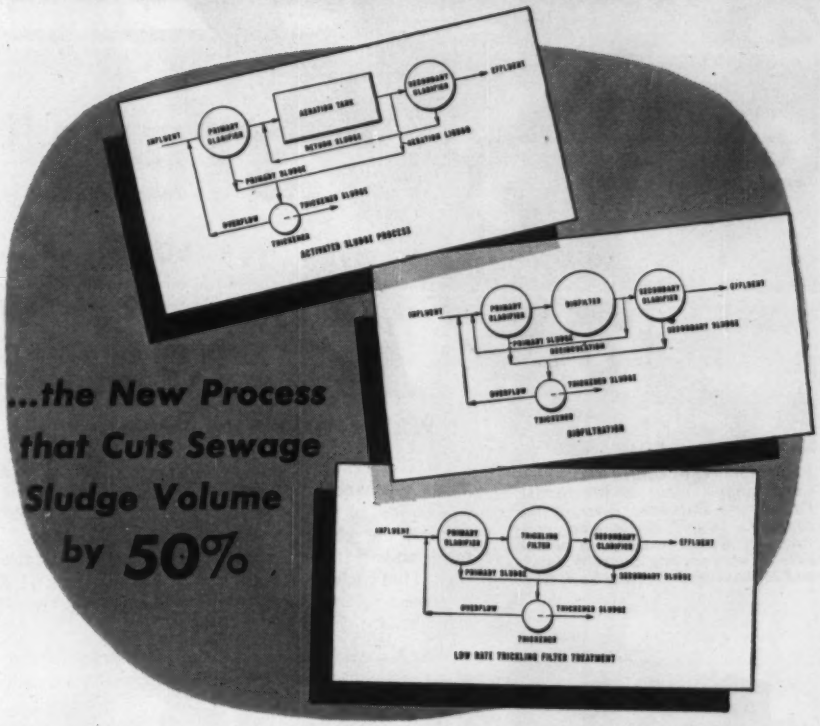
• **Associations**—AGC of Iowa elects **Irving Jensen,** Sioux City, as president . . . **C. Russell Ralph** heads up the Kansas Contractors Assn.—he's president of Kaw Paving Co., Topeka . . . **I. A. Trively** is elected president of the South Carolina section of ASCE . . . **A. Osberg** takes over as head of AGC's Mountain Pacific chapter.

Charles J. Geisler is elected president of New York State Association of County Highway Superintendents . . . **R. W. Hooker,** vice president of Hooker Electrochemical Co., Niagara Falls, is named president of Chlorine Institute Inc.—it's his seventh term . . . **George D. Gibson,** Toronto, is named as 1955 head of Ontario Association of Architects . . . **Maurice J. Roses** is new president of New York State Steel Fabricators Assn.

• **Business**—Turner Construction Co. elects **N. B. O'Connell** a director and **George M. Reaves** a vice president—Reaves is now in charge of the Boston office . . . **C. Dana McCoy** joins the Rust Engineering Co. as New York manager and international director . . . **H. E. Bailey** formerly manager of the Oklahoma Turnpike Authority, joins the Chicago engineering firm of De-Leuw, Cather & Co. . . . **Charles W. E. Clarke** and **Benjamin S. Thayer** are elected directors of United Engineers and Constructors, Inc.

• **Retirements**—From the American Oil Co., ASCE member **A. M. McKean,** chief engineer for the marketing department since 1924 . . . **K. E. Brunsdale,** first vice president of Pioneer Engineering Works, Inc., after more than 25 years with the company he helped found in 1928.

DENSLUDGE...



The Dorrco Densludge Process is a new means of producing a thicker sewage sludge in both primary and secondary treatment plants. It reduces sludge volume by as much as 50%—substantially simplifying digestion and disposal problems.

More specifically, these greatly reduced sludge volumes mean proportionately smaller digesters in new plants and increased digester capacity in existing plants. They mean lower initial costs for digesters in new construction and plant expansion alike. And Densludge eliminates digester supernatant, reduces digester heat requirements and improves suspended solids removal in the primary clarifier as well.

Bulletin #6260 describes how the process works, gives average operating results on three types of sewage sludge and covers the Dorr Densludge Thickener — the equipment key to the process. We'd like to send you a copy — without obligation, of course.

Write to Dorr-Oliver Inc., Stamford, Connecticut, or in Canada, 26 St. Clair Avenue East, Toronto 5.

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WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT
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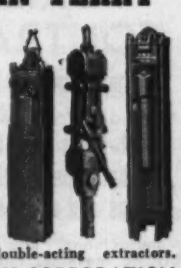
Wide Range of
PILE HAMMERS and EXTRACTORS



Complete standardized line of 11 double-acting hammers, 5 single-acting hammers and 2 double-acting extractors.

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Fairless Works of United States Steel Corporation's plant at Morrisville, Pa., on the Delaware River, is the country's largest single steel construction project undertaken at one time. Waterproofing done by Lewis and McDowell, Inc., New York City.

When permanent waterproofing was wanted on the foundation of U. S. Steel's new "Fairless Works," Karnak was chosen by the contractor. The world's most modern steel mill called for the best in all materials. That's why 750,000 yards of Karnak were used to protect against water, wherever there was a hydrostatic head.

Why Karnak? Because it has the Membrane System of waterproofing *that holds secure* against hydrostatic head or any water condition.

The secret to the extreme water resistance is the Karnak Membrane Fabric. Open Mesh Cloth, specially woven of long-fiber cotton is carefully saturated with highly refined asphalt so as to leave the mesh open. When this fabric is layered on the job with alternate moppings of liquid asphalt, it provides a tough, thoroughly waterproof membrane that resists cracks, abrasion and settling to maintain water resistance through the life of the structure.

The Karnak system is also the best for roof patching, skylight flashing, window and door flashing, through-wall and cornice flashing, as well as waterproofing against a hydrostatic head in dams, swimming pools, viaducts and tunnels... ***Lewis Asphalt Engineering Corp., 30 Church St., New York 7, N. Y.***

Save money with Karnak

Karnak Fabric is packed in sturdy corrugated cartons for protected shipping and storage. It is non-sticking, unrolls easily to the very end... "works" faster, with no waste. Rolls are available in 4", 6", 9", 12", 18", 24", 30", 36" widths...or special sizes to fit your requirements.

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OBITUARIES

Harold S. Welker, 56, Greensboro, N. C., construction engineer and builder, died Jan. 15. From 1925 to 1942 he helped operate Welker Bros. Construction Co. in Greensboro. He left the firm to become general manager and superintendent of construction for Kiger-Younts Construction Co., also in Greensboro.

Elbert J. Taylor, 57, chief of the Philadelphia Water Bureau from 1946 to 1952 and assistant chief for the past three years, died Jan. 22. A graduate of the University of Cincinnati, he formerly worked as an engineer on bridge construction for the Cincinnati division of the Pennsylvania Railroad.

Francis R. Schank, 77, a founder and Oregon president of the Independent Engineers for Private Enterprise, an organization that opposed federal development of Columbia River resources, died Jan. 10. Before retiring in 1949, he worked in Portland, Ore., as a construction engineer and consultant on hydroelectric projects.

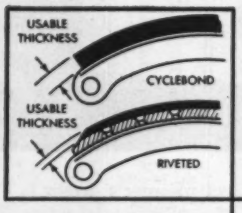
Everett S. Huntington, 61, Bureau of Reclamation engineer since 1933, died Jan. 22 in Denver. At the time of his death he was on leave from his Denver bureau post as chief of the general engineering branch in the office of the Assistant Commissioner and Chief Engineer. He had served in field offices for the Salt River and Central Valley Projects and as district manager of the South Platte River District.

Thomas E. Hendry, a staff engineer for the New York State Thruway, died Jan. 4 in Troy, N. Y. A 1914 graduate of Rensselaer Polytechnic Institute, he had been active for many years in the engineering field in the Albany, N. Y., area.

James E. Dickson, 75, first superintendent of the North Carolina Highway Department's Fifth Division, died Jan. 13. One of his early jobs was supervising construction of the first paved highway between Durham and Chapel Hill. After ending state service he entered the building supply business in Durham.

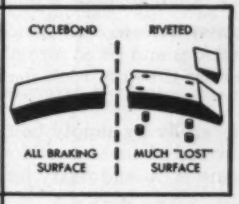
Max W. King, 71, civil engineer credited with numerous construction projects in Mexico and other foreign countries, died Jan. 17 in McAllen, Texas. From 1929 to 1940 he worked with the Mexican secretary for hydraulics as well as with other government departments in that country.

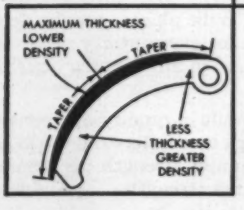
Another typical example of Dodge truck's extra-value engineering



More usable thickness.
Dodge truck Cyclebond brake linings can be used virtually through their full thickness. This gives the linings many thousands of miles of added life. Riveted linings should be worn only to rivet heads.

More usable surface.
Every square inch of Cyclebond lining area is braking surface. Riveted linings, because of rivet holes and mitered ends, have up to 10% less braking surface.





Tapered for easy stops.
Cyclebond lining is more tightly compressed at ends, gives a gradual taper. Thick center of lining makes first contact...increased pressure brings the ends into contact. Braking is smooth, even.

Why you go more miles before relining with Dodge truck brakes!

You can be sure of lower brake maintenance, more miles before relining, with Dodge truck brakes and famous Dodge truck Cyclebond linings. And that's in addition to the quick, positive stops, the smooth action, for which Dodge truck brakes are famous.

Long-lasting, reliable brakes are just one example of the extra-value engineering that means more for your money when you buy . . . more money saved over the life of your truck. Get the facts on how extra-value engineering saves you money; see your dependable Dodge Truck dealer.

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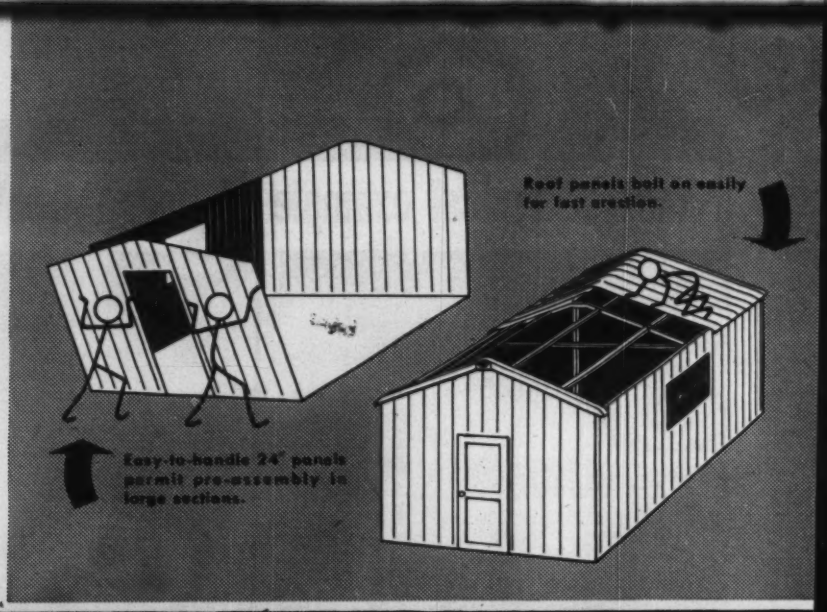
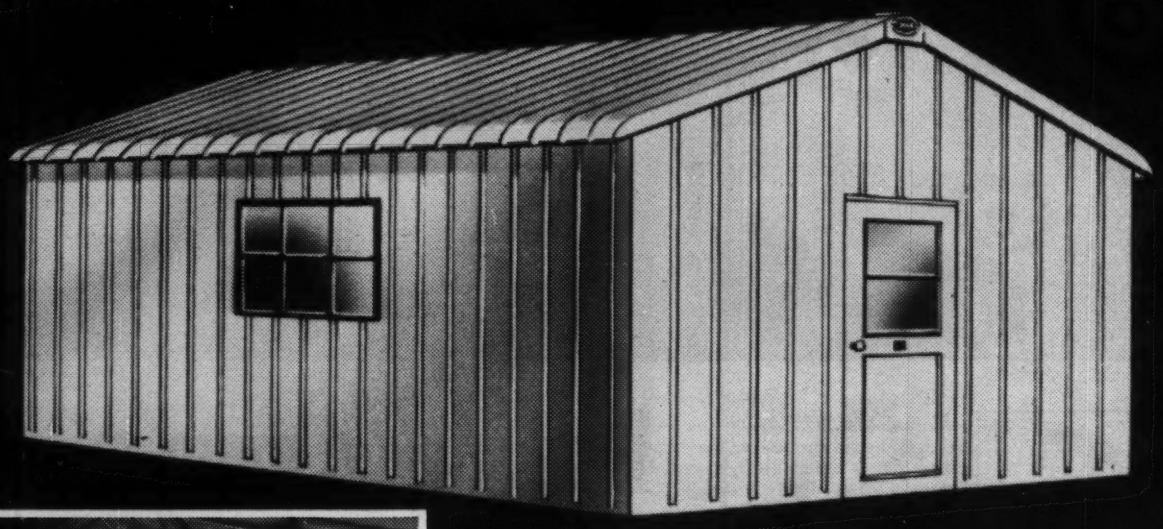
A PRODUCT OF CHRYSLER CORPORATION

NOW 2 men put it up with a wrench ...in hours



NEW BUTLER Panl-Frame Building



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Here's a new steel utility building that's a budget planner's dream!

With Butler panelized construction, wall panels can be quickly and easily pre-assembled into large sections and tilted into place on any type foundation. A wrench and screw driver are the only tools needed. Unskilled workers can easily do the job.

Roof panels go up just as easily by simply bolting them to steel frame and eave channels. In hours, instead of days . . . and at minimum erection cost . . . a Butler Panl-Frame building is up and ready for use.

And the uses are unlimited—for field houses, bulk plants, supply depots, pump houses, electric power stations, garages . . . for every utility need. Sizes from 6′ to 24′ widths . . . 8′ or 10′ high sidewalls . . . in any lengths desired by adding extra sections.

In new Butler Panl-Frame buildings, you get built-in quality and construction features that have made Butler steel buildings best sellers the world over. Carefully engineered framework gives you maximum strength per pound of steel. Butler galvanized, high-rib panels add extra strength . . . provide permanent, weather-tight, fire-safe shelter.

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MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
March Materials, and Labor Prices, will appear in March 10, 1955 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots Gravel,	Gravel,		CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.: per block		CONCRETE Ready Mixed 1:2:4: over.
	Paper	Bulk	Mortar	1½ in.	¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	50 c.y., del.
Atlanta	$3.87a	$3.56a	$3.40	$2.075	$2.075	$2.50‡	$2.14	$2.24	$1.45	$1.65	$0.18	$0.195	$12.25g
Baltimore	4.06a	3.75a	3.53	2.60‡a	2.60‡a	2.00‡a	2.75‡a	2.80‡a	2.65‡a	2.60‡a	.17	.17a	12.15
Birmingham	3.62	2.75e	....	2.53n	2.53n	2.08n	2.75	2.75	1.35	1.45	.165	.165	11.00
Boston	4.37b	4.11b	3.96	2.50a	2.50a	2.50a	1.50a	1.60a	.....	.....	.215	.245a	12.50h
Chicago	3.63a	3.32a	3.35	3.25‡b	3.25‡b	3.65‡b	3.50‡b	3.50‡b	2.25‡	2.25‡	.23	.23b	12.50r
Cincinnati	3.85c	3.55c	3.63	2.19‡c	2.24‡c	2.24‡c	2.54‡c	2.54‡c	.....	.....	.18	.225a	11.45r
Cleveland	N. A. in C. L.	3.34e	....	2.05f	1.85f	1.65	4.10‡a	4.10‡a	3.35‡	3.15‡	.....	.22	14.40d
Dallas	3.15a	2.85a	2.90	2.18	2.28	1.84	2.22	2.38	.....	.....	.11e	.2675	9.40
Denver	4.24a	3.94a	4.24	1.85	2.00	1.20	....	....	.....	.....	.23	.255a	10.50
Detroit	3.72a	3.17a	3.50	4.50‡b	4.50‡b	4.00‡b	3.75‡	3.75‡	4.25‡	4.25‡	.21	.21a	12.70
Kansas City	4.00b	3.80b	3.48	1.85‡	1.85‡	1.85‡a	2.00‡a	2.00‡a	.....	.....	.22a	.24c	12.75bs
Los Angeles	4.72ch	4.26ch	5.20	2.21a	2.41a	2.21a	2.16a	2.26a	.....	.....	.135fm	.245m	11.88lh
Minneapolis	4.10a	3.79a	3.71	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	.....	.....	.19i	.....	13.25k
Montreal	3.11d	2.86d	....	3.00e	3.00e	2.25	1.65ij	1.90ij	.....	.....	.19	.19a	10.55ab
New Orleans	3.50a	3.20a	3.48	2.44	2.44	2.00	....	....	1.45	1.65	.275	.....	12.90
New York	4.16a	3.85a	3.53	2.85bk	2.85bk	1.90bk	2.70bl	2.70bl	.....	.....	.....	.....	14.65am
Philadelphia	3.73/4.12‡a	3.42/3.79‡a	3.58/3.63‡	2.75‡ep	2.75‡ep	2.15‡ep	2.30‡	2.40‡	2.00	1.90	.22/.26	.....	13.20ap
Pittsburgh	3.62a	3.34a	3.62	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.22d	.28	13.00l
St. Louis	3.55/3.78c	3.25/3.51c	3.40/3.57	3.10am	2.90am	2.30/2.90am	1.60j	1.70j	1.50	1.50	.22	.28ci	12.25w
San Francisco	3.67c	3.27c	....	2.07	2.07	2.17	2.22	2.22	.....	.....	.....	.28cl	12.15c
Seattle	4.80a	3.55a	5.95h	3.50‡bm	3.50‡bm	3.50‡bm	4.00‡bm	4.00‡bm	.....	.....	.225t	.315t	12.30t

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: *a* Less 10¢ disc, 15 days. *b* Less 2% disc, 15 days. *c* Less 10¢ disc, 10 days. *d* Truckload lots, deliv, retro 12/1/54. *e* Truckload lots, destination price. *h* LCL.

SAND GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. *o* 1–3 mi zone. *p* Add 10¢ for ea. add'l mi zone.

CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete *e* 5¼ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash *j* Less 1% for cash. *l* F.o.b. plant San Rafael. *m* F.o.b. yard

READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cy. brackets. *d* 1–3 mi. zone. *e* 2,000 lb comp. *f* 2500 lb. comp. *g* Less 25¢ disc, 15 days. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause. *o* Add 15¢ for ea. add'l 3-mi zone. *r* Includes 50¢ heating charge *t* Includes 25¢ heating charge *u* Includes 35¢ heating charge

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn.	$2.90†	Buffington, Ind.	$2.85†	Steelton, Minn.	$2.95†	Muskegon, Mich.	$3.00†	Toledo, O.	$2.90†
Clinchfield, Ga.	2.90†	Independence, Kan.	2.80†	Leeds, Ala.	2.75†	Saginaw, Mich.	2.90†	Milwaukee, Wis.	3.05†
Kingsport, Tenn.	2.90†	Hannibal, Mo.	2.85†	Duluth, Minn.	2.95†	Wyandotte, Mich.	2.90†	Green Bay, Wis.	3.05†
West Des Moines, Iowa	2.95†	Northampton, Pa.	2.90†	Hudson, N. Y.	2.75†	Buffalo, N. Y.	3.00†	Ironton, O.	2.90†
Nazareth, Pa.	2.90†	Universal, Pa.	2.95†	Alpena, Mich.	2.80†	Oswego, N. Y.	3.15†	Montreal City	2.66
Bath, Pa.	2.90†	Waco, Tex. (+ 10¢ tax)	2.60†	Detroit, Mich.	2.90†	Cleveland, O.	2.95†	W. Winfield, Pa.	3.00†

† *Prices to hold for first quarter of* 1955.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 18-lb. treat	PAVING ASPHALT Per ton, less than 80 penetration Tank car	Drums	ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration Tank car	Drums	CUTBACK ASPHALT MC Per ton Tank car	Drums	ROAD OIL Per gal. Tank car	ASPHALT EMULSION RSI Per gal. Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.17	$0.27	$0.17w	$0.27w	$0.15	$0.15	$0.25
Baltimore	150.00‡	75.00‡	.....	21.00i	.....	.085i	0.175i	.09iwB	.18iwB	.09i	.095i	0.185i
Birmingham	.....	49.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00a	23.00a	22.00av	22.00av	.09F	.....	.09a	.10aG	.22aG
Chicago	155.00‡	85.00‡b	3.45/3.55‡f	19.85b	29.85b	18.85bv	28.85bv	.094bwH	.1740bwH	.0725b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	73.00d	5.03g	23.00	.....	23.004	.....	.10254wF	.....	.....	.10254G	.184G
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	28.91	50.44	.098	.1087	.1960
Denver	.....	50.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	98.00	.....	27.21	.....	27.21v	.....	.1188wI	.....	.0792	.....	.211
Kansas City	e	e	e	15.00cl	.....	17.50o	.....	.07owJ	.....	.055c	0.11	.....
Los Angeles	e	.....	e	16.00dmx	.....	16.00dvx	.....	18.00dxK	.....	17.00dv	.0825f	.1725f
Minneapolis	.....	.....	2.97h	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montreal	.....	e	e	27.00n	39.60n	.135n	.198n	16.50nu	20.90nu	.132n	.197ns	.289ns
New Orleans	.....	.....	.....	17.50e	....o	17.50ev	....o	.085ew	....o	.0825B	.0825BL	.....
New York	.....	.....	2.75f	23.89qCD	44.32qD	22.89wtCD	43.57wtD	.1023wCDF	.1889wDF	.....	.1023CD	.1918D
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.09uF	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00B	40.00B	.098	.11	.224
St. Louis	.....	.....	.....	18.55f	.....	.1713	.....	.0865wM	.....	0.155	.10	.....
San Francisco	.....	55.00e	.....	17.50g	33.00gp	17.50gkv	33.00gkv	20.00gN	37.50gN	18.75v	.085y	.....
Seattle	.....	.....	.....	17.50h	38.00h	17.25hv	.....	24.50K	.....	19.75hv	.085h	.095w

‡ Delivered.

PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2⅝ x 8¼ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6¢ treat. *g* 3" *h* 2" int., 3¢ treat. *i* 3 x 3⅝ x 8½. *j* 2½", 6lb. tr.

ASPHALTS: *a* Price at plant, Everett, Mass *b* F.o.b. refinery Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* F.o.b. refinery, Baltimore. *j* F.o.b. refinery, Inglewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40/80 penetr. *n* Tax incl. *o* Drums not avail. Shipped in steel bbl. *q* 40/85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85/200 penetr. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks *y* F.o.b. Oakland. *A* F.o.b. refinery, Cleveland. *B* F.o.b. Destrehan, La. *C* Bulk. *D* Prices based on transporting to Manhattan via truck. *E* RC. *F* Also RC. *G* Also MS, SS. *H* RC0 -5 incl. *I* MC 4. *J* MC, RC .0675. *K* MC 3, 4 & 5. *L* MS. *M* MC 1-5, RC 1-5, .089. *N* MC 3.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	STEEL RAILS Per Net Ton Re-rolled	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$4.25	$4.225	$4.30	$9.25	....	$89.00	$107.00	Not	$5.425	$7.30	$5.275	....
Chicago Area	4.25	4.225	4.30	9.25	$5.075	89.00	107.00	avail-	5.425	7.30	5.275	....
Pittsburgh Area	4.25	4.225	4.30	9.25	5.075	89.00	107.00	able	5.425	7.30	5.275	$11.50
Buffalo Area	4.25	4.225	4.30	9.25	5.075	89.00	107.00	....	5.425	7.30	5.275	11.50
Cleveland	....	....	4.30	9.25	5.075	.....	.....	....	....	....	....	11.50
Youngstown Area	....	....	4.30	....	....	.....	.....	....	....	7.30	....	....
Geneva	4.25	4.225	....	....	....	.....	.....	....	....	....	....	....
Los Angeles	....	....	....	....	5.075	.....	.....	....	....	7.30	....	....
Pueblo	4.30	4.70	4.75	....	....	.....	95.00	....	5.425	7.30	5.275	11.50

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS 5 tons to carload lot New billet	REINFORCING BARS 5 tons to carload lot Rail steel	EXPANDED METAL LATH Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATH Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCING Per 100 sq. ft., carload lots fob mill
Atlanta	$7.08	$7.22s	$7.22s	$38.00‡	$42.00‡	
Baltimore	7.02	7.06j	....	42.00	45.00	
Birmingham	6.35	6.15t	6.15t	51.00p	57.00p	
Boston	7.49a	7.37	7.37	42.00	46.00	
Chicago	6.69	5.78gu	5.78gu	46.00‡	56.00‡	
Cincinnati	7.06ak	7.06rr	....	39.00mm	43.00mm	
Cleveland	7.02	5.76c	....	39.00‡	43.00‡	
Dallas	9.05	7.25	7.25	49.00	52.00	
Denver	8.15	7.20c	....	48.00n	63.00nn	
Detroit	7.16	6.93dw	....	50.50	60.50	
Kansas City	7.36a	7.18	....	43.50	47.50	
Los Angeles	7.55fd	7.05	....	52.00	58.00	
Minneapolis	7.05d	7.68b	7.68b	37.00	41.00	
Montreal	7.50–8.00jC/8.50–9.20k	6.65i	6.65i	46.00k	51.00k	
New Orleans	....	6.20akz	....	66.00	60.00	
New York	7.48	6.85yaa	6.85yaa	42.00oo	48.00oo	
Philadelphia	6.42	6.67	....	38.00‡	42.00‡	
Pittsburgh	6.55	6.55z	6.55	37.60	39.60	
St. Louis	7.09a	6.30c	6.30c	55.00l	56.00l	
San Francisco	7.50	6.85j	....	41.50	47.50	
Seattle	5.00e	6.55cj	....	51.00ww	57.00ww	

Quantity extras, per cwt: under 100#, +$4; 100–399#, +$3; 400–999#, +85¢; 1000–1999#, +20¢; 2000–9999#, base price; 10,000–19,999#, −10¢; 20,000–39,999#, −40¢; 40,000# and up, −50¢

EXTRAS, per cwt—*Quantity: less than 700#, +50¢; 700–1499#, +25¢; 1500–7999#, +10¢. *Sizes: #2 +$2.20; #3 +$1.10; #4 +80¢; #5 +62.5¢; #6, #7 +45¢; #8, #9, #10 +30¢. *Bending: heavy, +80¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job). *Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–500 tons, +50¢ but not over $4500; 20–200 tons, +60¢ but not over $2000; 5–20 tons, +70¢ but not over $240; under 5 tons, +85¢ but not over $70. *Design only: +60¢

WELDED FABRIC REINFORCING—Per 100 sq. ft., carload lots fob mill:
4 × 16 in., No. 8 & 10 wires—Joliet, Ill., Donora, Pa., Monessen, Pa.....$3.18
4 × 12 in., No. 8 & 12 wires—Joliet, Ill., Donora, Pa., Monessen, Pa.....$2.08
6 × 6 in., No. 6 & 6 wires—Joliet, Ill., Donora, Pa., Monessen, Pa.....$3.33

*‡ Delivered *a 2000–9999# *b 10,000–15,999#, fob city *c 20 tons or over *d 10,000–19,999# *e fob plant *f incl. delivering in free zone *g CL *h list price; dominion tax exempt; add provincial and municipal taxes *i add dominion, provincial and municipal sales taxes *j intermediate and hard grade *k fob city *l delivered; contractor to do unloading *m copper alloy *n LCL *o asphalt coated *p del. of 500 sq. yd. or more *q 4# per sq. yd. *r 2% off for cash *s add 2.5¢ switch *t add 5¢ switch, 15¢ del. *u add 6.25¢ switch *v incl 15¢ del. *w add 20¢ del. *x add 5¢ switch *y add 30¢ del. *z add 10¢ del. *aa Prices beginning Aug. 1 based on Morrisville, Pa.; previously based on Sparrow Pt., Md. Decrease in freight costs due to switch in mill base offset mill price rise July '54. *A American made. *C Canadian made. † Number system replaces inch system of classifying bar sizes. New system is based on number of eighth inches in diameter of bar.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 12" Sew Cl. 1	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$101.00	$1.45	$2.42	$ .545	$1.27	$4.82	$12.925	.....	.....	$0.90m	$3.40m
Baltimore	121.50	1.45	2.42	.546	1.053	4.275e	11.3775	$178.20	$274.80	.95	2.60
Birmingham	108.00	1.45	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25m	2.75m
Boston	122.00	1.47	2.20	.553qrf	1.0665qrf	4.365qrf	12.00qrf	187.80r	289.20r	1.54mg	3.65mg
Chicago	107.00	1.45	2.20	.70m	1.35m	5.62m	13.50m	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.47	2.20	.581z	1.120f	4.64f	12.20f	225.00	350.00	.80m	2.95m
Cleveland	108.00	1.47	2.29	.49z	.945z	3.96z	10.66z	158.00m	245.65m	.85m	3.25m
Dallas	112.00	1.47	2.54	.439	.799	4.00b	9.175	.....	.....	.49	1.60
Denver	115.00	1.53	2.54	.45m	.78m	3.48m	....	.....	.....	.74m	2.50m
Detroit	108.00	1.47	2.29	.75	1.45	5.75	15.50	230.00m	350.00m	.86	3.47
Kansas City	113.00	1.47	2.29	.53	.945	3.87	10.60	260.00	480.00	.80	3.25g
Los Angeles	129.65x	1.53	2.20	.671	1.461	5.971	14.891	228.20l	348.90l	.95	2.75l
Minneapolisw	112.00	1.49	2.42	.75mo	1.36mo	5.60mo	....	.....	.....	1.38h	4.05h
Montreal	110.00	....	....	1.07u	1.73u	5.52u	8.93u	.....	.....	1.17b	3.11j
New Orleans	101.50	1.45	2.42	.48	.875	4.69	....	280.00p	460.00p	.65	2.29
New York	111.35	1.47	2.20	.66	1.28	5.08	13.42	.....	.....	1.15	3.00
Philadelphia	110.00	1.45	2.20	.65	1.25	4.95e	12.65e	300.00‡	350.00‡	1.60h	3.95h
Pittsburgh	110.00	1.47	2.20	.468m	.864m	3.86m	9.78m	182.00	244.00	1.05h	2.50h
St. Louis	112.00	1.45	2.29	.56	1.03	4.22	9.80	180.00l	380.00l	1.20il	2.70il
San Francisco	127.00	1.53	2.20	.61d	1.41d	5.78d	14.32d	235.00l	302.00l	1.05m	3.30n
Seattle	138;73	1.54	2.20	.51b	.91b	....	....	150.00z	.....	.85h	2.75h

*WROUGHT STEEL PIPE (Full standard weight) Discount from list; see footnote

	Butt Weld Galv.	Butt Weld Black	Lap Weld Galv.	Lap Weld Black
Atlanta	10.25a	23.50a	2.75	20.50a
Baltimore	7.75a	24.25d	10.00d	24.25d
Birmingham	+5.25ab	12.50ab	6.75g	24.60ab
Boston	25.50a	24.25d	7.75a	24.25d
Chicago	10.00d	24.25d	10.00d	24.25d
Cincinnati	6.50d	24.25d	6.75g	24.60ab
Cleveland	17.00	34.25	17.00	34.25
Dallas	17.00	34.25	17.00	34.25
Denver	15.00	33.25	16.00	33.25
Detroit	17.00	34.25	17.00	34.25
Kansas City	17.00	34.25	17.00	34.25
Los Angeles	4.00b	21.25b	4.00b	21.25b
Minneapolisw	.....	.....	.....	.....
Montreal	.....	.....	.....	.....
New Orleans	.....	.....	.....	.....
New York	17.00	34.25	17.00	34.25
Philadelphia	17.00	34.25	17.00	34.25
Pittsburgh	17.00	34.25b	17.00	34.25b
St. Louis	17.00	34.25	17.00	34.25
San Francisco	17.00	34.25	17.00	34.25
Seattle	17.00	34.25	17.00	34.25

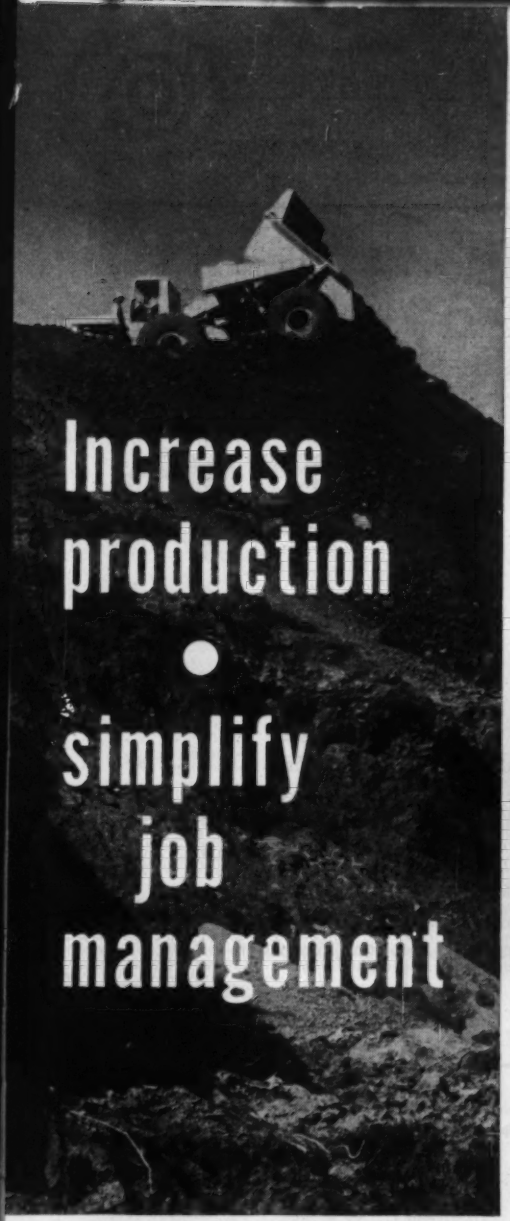
Mill: Lorain, Ohio; Aliquippa, Pa.; Sparrows Pt., Md.; Beaswood, W. Va.; Youngstown, O.; Indiana Harbor, Ind.; Sharon, Pa.; Wheatland, Pa.; Etna, Pa.; Fontana, Calif.

*‡ Delivered *a Class B & heavier. Based on existing freight rates; subjec to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. *b Extra strength ASTM C 200–44T *c 4-in., $90 *d SS361-A *e 30-in. *f 21 in. *g culvert pipe; reinforced, ASTM C 76–41 *h reinforced, ASTM C 75–41 *i reinforced, ASTM C 76–37 *j centrispun; no standard specs. in Canada *k 2% off for cash *l fob plant *m truck delivery *n LCL delivered, fob truck *o listed price based on LCL (no min.) *p freight allowed to destination in city *q ASTM C 13–40 *r CL fob origin, freight allowed *s 2 ft lengths *t 3 ft lengths *u CESA A 60–1941 specs. used *v standard strength *w 6 in., $1.67 per ft., Class 150, CL, fob track *x 6 in.

* WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. (based on approx. $200 per net ton): *Butt Weld* ¼ in., 5½¢; ⅜ in., 6¢; ½ in., 6¢; ¾ in., 6¢; 1 in., 8½¢; 1¼ in., 11½¢; 1 in., 17¢; 1½ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe but add following "discounts" to get Pittsburgh mill price: *Butt Weld* — 1 in. black, + 32.75, galv. + 61.0; 1¼ in. black, + 32.75, galv. +60.50, 1½ in. black, + 29.25 galv. + 56.75; *Lap Weld* — 2½ in. to 3 in. black + 33.50 galv. + 59.5; 4½ in. to 6 in. black + 30.50 galv. + 54.75. Add freight rates plus 3% transportation tax to get destination price.

† Threaded and coupled. a 3½ to 4 in. b Continuous welded. c 5 and 6 in. d 8 in.



Increase production • simplify job management

Stripping for airfield extension, Bedford, Mass.

Removing overburden from coal mine in Malaya

Speed loading — Big, wide "target" areas make it easy for shovel or dragline operators to get faster loading cycles with these Rear-Dumps. Body opening on 9-ton size is 6' x 11', on 22-ton is 9½' x 10½', on 35-ton, 10' x 17'8". Rear of body provides a wide, low entry for the dipper to give extra speed advantage for the excavator. Low entry, plus wide body, reduces spillage. High, all-steel front guard protects operator, prime-mover.

Reduce time dumping — a touch of electric switch on operator's panel activates hoist motor . . . means a fast, safe dump. Independent brakes on front and rear allow operator to safely back to edge of fill . . . lock rear wheels and dump over edge . . . yet keep prime-mover in forward gear for safety and fast getaway. There is no delay for pressure to build up, no slow jacking by hydraulic pumps. Loads fall free and FAST!

Digging tunnel for new power plant in Sweden

Hauling quarry rock, Chattanooga, Tennessee

Work fast in tight quarters — positive power steer, 90° turns, electric controls, multi-disc air brakes that have more braking surface on a single wheel than most haul units have on all four wheels . . . all contribute to fast handling over steep, narrow, winding roads. Big tires roll easily over rough surfaces, steer easily out of ruts, give operator confidence to work fast even under the most difficult hauling conditions.

Cut maintenance troubles — because this machine has no hydraulic lift complications, no high pressure jack lines to keep tight, no long drive-shafts, no springs, spring hangers, or hinged steering connections, the most common maintenance problems of rear-dump haul units are eliminated. Owners in all parts of the world are reporting exceptionally high mechanical efficiency and low maintenance costs handling heavy rock and ore with them.

Digging railroad tunnel at Lodgeville, New York

Relocating U.S. Hwy. 1 in New Haven, Conn.

Loading shot limestone near Parker, Penn.

Operator comfort — from an employee relationship standpoint, as well as safety, this Rear-Dump is an asset to your organization. The big air foam cushion seat eliminates "bounce" . . . no "up and down" ride on these machines. Push-buttons on the instrument panel actuate electric motors that eliminate all manual work of steering. Fatigue factors are greatly reduced. This means increased production for you.

Cut weather delays — LeTourneau-Westinghouse Rear-Dumps keep hauling even when crawlers can't get through! Giant tires, 2' wide and up to 7' diameter, give ample flotation for soft going. When a wheel slips, power-proportioning differential applies 4 times the pull to wheel on firmest footing. Independent power steer turns prime-mover to seek new footing for better traction to pull out of mud holes, soft sand, or wet snow.

Insure future earnings — Behind the 2-wheel prime-mover, you easily interchange LeTourneau-Westinghouse scrapers, bottom-dump haulers, cranes, flat-bed trailers. This gives you a plus in insurance of steady earnings in any season and any time. And, any additional trailing unit is available anytime at only approximately 25% of the initial cost! Bulldozer blade or snow plow can also be added on the small "D" for extra profits.

R-694-G-b

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft.
(Prices in italics)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	LONG LEAF Y. P. Merchantable grade up to 20 ft. 2x12 Rgh	12x12 Rgh	PLYWOOD Rail freight increment (See note for base price) ⅜"	¾"
Atlanta †	$77.00	$80.00	$73.50	$74.00	$77.50	$81.00	$79.00	.....	.....			$22.32	$27.24
Baltimore *	87.00	92.00	85.00	85.00	88.00	95.00	100.00	.....	.....	$160.00	$170.00	25.92	31.60
	120.00g	*120.00g*	*120.00g*	*120.00g*	*120.00g*	*120.00g*	*120.00g*	*$135.00*	*$135.00*				
Birmingham †	80.50	82.50	80.50	87.50	90.50	95.50	105.50	.....	.....	120.50	165.50	21.78	26.58
	105.00	*105.00*	*108.50*	*108.50*	*108.50*	*105.00*	*105.00*	*105.00*	*105.00*	.....	.....		
Boston *	95/103a	102/112a	96/100a	94/98a	94/98a	94/98a	.....	.....	.....	.....	.....	25.92	31.60
‡	*87.00n*	*87.00n*	*116/118*	*114/116*	*114/116*	*114/116*	*117.00*	*118.00*	*118.00*				
Chicago **	98.00	101.00	90.00	105.00	112.00	115.00	110.00	.....	.....	139.00	139.00	22.45	27.37
	103.00	*103.00*	*111.00*	*111/112*	*111/112*	*113/114*	*120.00*	*120.00*	*120.00*				
Cincinnati *	91.00	92.00	80.00	88.00	92.00	100.00	107.25	.....	.....	128.00	128.00	25.00	30.48
	96.00	*98.25*	*105.50*	*104.50*	*105.50*	*106.00*	*130.25*	*130.25*	*130.25*	.....	.....		
Cleveland **	94.00	96.00	98.00	102.00	102.00	103.00	.....	.....	.....	.....	.....	25.37	30.93
			109.00	*109.00*	*109.00*	*109.00*	*120.00*	.....	*120.00*				
Dallas k†	70.00	80.00	65.00	60.00	60.00	60.00	130.00	.....	.....	130.00	130.00	18.72	22.80
Denver *	*Not in stock*		*119.75*	*121.50*	*121.50*	*122.50*	*125.00*	*137.75*	*140.50*	.....	.....	13.92	16.98
Detroit ‡	112.00	116.00	105.00	112.00	118.00	118.00	.....	.....	.....	.....	.....	25.00	30.48
	125.00	*125.00*	*130.00*	*130.00*	*130.00*	*130.00*	*114.00*	*114.00*	*114.00*	.....	.....		
Kansas City *	120.00	120.00	125.00	130.00	120.00	.....	.....	.....	.....	.....	.....	16.56	20.16
	125.00	*125.00*	*129.00*	*129.00*	*129.00*	*129.00*	*150.00*	*190.00*	*195.00*	.....	.....		
Los Angeles 3	97.00	97.00	97.00	97.00	97.00	97.00	*128.00*	*138.00*	*128.00*	.....	.....	16.61ab	20.25ab
Minneapolis #	*145.00*	*145.00*	*145.00*	*145.00*	*145.00*	*148.00*	*165.00*	*165.00*	*165.00*	.....	.....	19.89	24.25
Montreal ab	88.00	97.00	88.00	88.00	100.00	118.00	.....	.....	.....	99.50	99.50	.....	.....
	165.00	*165.00*	*165.00*	*165.00*	*165.00*	.....	*105.00*	*105.00*	*105.00*				
New Orleans †	100.00	100.00	92.50	85.00	90.00	94.00	118.50	.....	.....	150.00	148.00	18.72	22.80
†	*108.50*	*108.50*	*118.00*	*118.50*	*118.50*	*118.50*	*117.00*	*124.00*	*124.00*				
New York 3	112.50	115.50	122.50	125.00	125.00	125.00	165.00	.....	.....	240/260	240/260	25.92	31.60
	.....	.....	*125.00*	*125.00*	*125.00*	*125.00*	*160/170*	*165/175*	*165/175*			.....	.....
New York **	92.00	94.00	82.50	93.00	95.00	98.00	90.00	.....	.....	185.00	235.00	.....	.....
	100.00	*102.00*	*108.00*	*108.00*	*106.50*	*107.00*	*109.00*	*123.00*	*125.00*				
Philadelphia ‡	Range from $115.00 to $135.00					115/135	115/135	.....	.....	210/220	210/220	25.92	31.60
	Range from $128.00 to $165.00						*133/155*	*150.00*	*150.00*				
Pittsburgh †	Range from $95.00 to $100.00						120.00	.....	.....	120.00	130.00	25.92	31.60
	120.00	*120.00*	*120.00*	*120.00*	*120.00*	*120.00*	*125.00*	*145.00*	*145.00*	.....	.....		
St. Louis ‡	110/115	112/117	116/121d	117/126	120/126	121/126	.....	.....	.....	.....	.....	18.72	22.80
	.....	.....	*120/125i*	*126/130*	*126/130*	*127/131*	*158/176*	*158/176*	*180/196*	.....	.....	.....	.....
San Francisco A†	*85.00*	*85.00*	*87.00*	*86.00*	*84.00*	*83.00*	*83.00*	*85.00*	*85.00*	.....	.....	12.22	14.91a
Seattle †	*72.50*	*72.50*	*72.50*	*72.50*	*72.50*	*72.50*	*75.00*	*81.00*	*84.00*	.....	.....	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type-Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8, 10, & 12 ft. lengths. *e* 8 to 16 ft. lengths. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common. *n* #3. A Rail freight rate from North west mills to San Francisco are $11.50 to $15.00 per M ft. bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Interior Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅜", $175.00; on ¾", $191.00. Exterior ⅜", $194.00, ¾", $212.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a* Lower rate by water shipment. *b* 50,000 lb. minimum.

GLASS, EXPLOSIVES, CHEMICALS

WINDOW GLASS

Discounts from jobbers list, Feb. 1, 1950a
Single or Double Thickness

	A quality	B quality
Atlanta	79%	80%
Baltimore	78%d	80%d
Birmingham	83%	83%
Boston	77-10%	77-10%
Chicago	76%	76%
Cincinnati	76%	76%
Cleveland	76-10-10%	76-10-10%
Dallas	75%	75%
Denver	79%	79%
Detroit	76-10-10%	76-10-10%
Kansas City	80-10%	80-10%
Los Angeles	78%	78%
Minneapolis	75-10%	75-10%
Montreal	40-5%be	40-10-5%b
New Orleans	78%	79%
New York	80-10%	80-10%
Philadelphia	77%	79%
Pittsburgh	80%	80%
St. Louis	80-10%	80-10%
San Francisco	70%	70%
Seattle	73%	76%

EXPLOSIVES

Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*

Atlanta	$0.2365
Baltimore	.2365
Birmingham	.1840
Boston	.2365
Chicago	.2365
Cincinnati	.2365
Cleveland	.2755
Dallas	.2440
Denver	.2415
Detroit	.2365
Kansas City	.2415
Los Angeles	.2390
Minneapolis	.2415
Montreal	21.35h
New Orleans	.2415
New York	.3975g
Philadelphia	.2365
Pittsburgh	.2090
St. Louis	.2415
San Francisco	.2365
Seattle	.2390

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U.S.; $1.75 per 100 lbs. higher in Canada.

Glass; *a* Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h* F.o.b. Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.10.

40% Ammonia Gelatin price ranges in other than urban areas, per lb.
except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.184	$0.2165	$0.2365
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.189 - .1965	.2215-.229	.2415-.249
Rocky Mtn. States	.189 - .2015	.2215-.229	.2415-.254
Pacific N. W. States	.1865-.199	.219 - 2315	.239 - .2515
Pacific S. W. States	.184 - .1915	.2165-.219	.2365-.2415

PILES, TIES F.O.B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots;

		8"x8"x8' Untr.	8"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak:: c	....	....	....	....
	Pine s	....	....	....	....
New York	S. L. Sap Pine	$2.00	$4.00	$3.00	$5.00
	Mixed Oak	2.50	4.50	3.50	5.50
Birmingham	Hardwood:	2.40	3.88a	2.85	4.58a
Chicago	Red Oak	....	3.20a	....	4.10/4.20a
Los Angeles	Douglas Fir	....	....	....	....
	Redwood:	....	....	....	....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	2.20	....	2.45	....
	Red Oak	2.10	2.65a	2.30	3.00a
	Sap Pine or Cypress	....	2.55a	....	2.85a
San Francisco	Douglas Fir	2.08e f	3.08af	2.73bf	3.93caf
Montreal	Birch or Maple	....h	....h	....h	....h

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

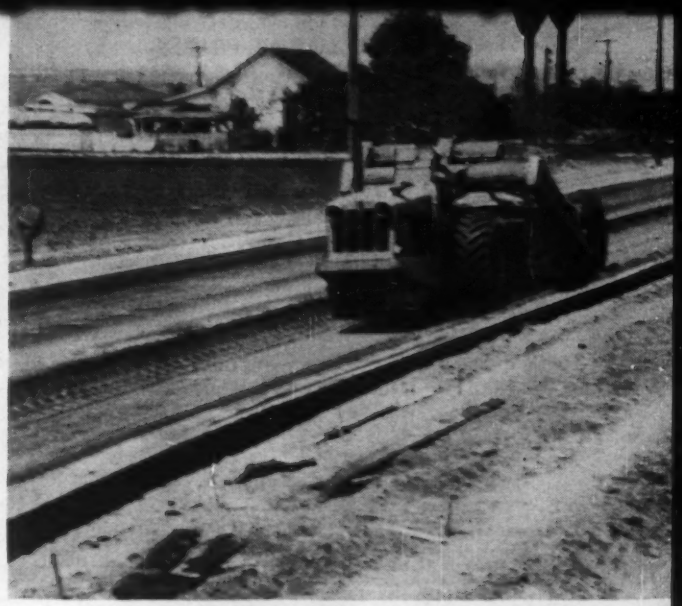
CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.095
Calcium chloride, 77-80%, flaked, 100-lb. paper bag, f.o.b. works, ton	27.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.30
Soda ash, 58%, in paper bags, per 100 lb. dense	1.70
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.35

Continued on page 80

Tournapull power steer speeds finish-grading of 10′3½″ wide parkway



Power steer lets 10′-wide C Tournapull do a fast job of finish grading 10′ 3½″ wide parkway.

M. S. MECHAM & SONS, South Gate, California, leveled this 24,000-yd. parkway in Long Beach in 14 working days.

Their two 14-yd. C Tournapulls moved all yardage . . . most of it with pusher assistance . . . and also handled the finish grading.

Some finishing required the 10 ft. wide "C's" to work between curbings 10 ft. 3½ in. wide. Here, the Tournapulls self-loaded a mixture of sand, clay, and common earth . . . spread over low spots. Electric control allowed smooth, accurate cut and spread. Power steer kept rigs on selected course, regardless of underfoot conditions. Ruts and stones didn't throw wheels out of line of travel. Operators kept machines rolling right along without danger of damaging new curbs.

Self-loaded, "C" moves along parkway, spreads thin layers accurately over scattered low spots. Instant, electric-control produced fast, smooth finishing.

Under $1000 per year for maintenance

"Tournapulls," says Earl V. Mecham, "are the finest pieces of machinery we have ever owned. Our maintenance costs are very low . . . less than $1000 per year *for both units.*" Records show over 95% mechanical efficiency after 3 years of service.

If you're interested in seeing what Tournapulls can do on your work, just call us. We'll be glad to show you the "C" in action.

The recent purchase by Westinghouse Air Brake Company of the earthmoving and related business of R. G. LeTourneau, Inc., combines two firms which are world leaders in their respective fields. It brings together the earthmoving know-how of LeTourneau and the precision manufacturing and research experience of Westinghouse Air Brake. You can buy from this strong new company with even greater confidence than before.

Tournapull — Trademark Reg. U.S. Pat. Off. P-529-H-b

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION—SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE—LOAD BEARING—SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$124.65	$124.65	$249.30	$280.45	.....	.....	$24.50	$26.50	.....	.....	.....
Baltimore	186.00	198.35	372.00	421.50	549.00	627.00	36.00[k]	41.00[k]	32.00	21.50	.....
Birmingham	126.00[p]	136.00[p]	.....	284.00[p]	.....	.....	26.50[ff]	32.50[gg]	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	283.25†	.....	.....	36.85[p]	39.85[p]	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	26.00	28.00	31.00	27.00	.....
Cincinnati	185.00[j]	195.00[j]	360.00[jdd]	.....	.....	.....	45.00[j]	46.00[j]	26.00[j]	26.00[j]	.....
Cleveland	170.00[ee]	181.00[ee]	.....	.....	.....	.....	36.50	36.50	28.75	23.75	38.50[ee]
Dallas	.....	118.00	.....	.....	.....	.....	19.75	32.25	32.00	21.80	.....
Denver	.....	.....	.....	.....	.....	.....	34.00	41.00	34.80[bb]	28.00[bb]	34.00[bb]
Detroit	130.00	138.00	259.00	.....	515.00	360.00	37.50[cc]	38.50[cc]	34.00	30.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	29.25	.....	32.00	27.50	28.50
Los Angeles	r	r	r	r	r	r	27.50[ii]	.....	34.00	34.00	35.00
Minneapolis	175.00[p]	196.00[p]	407.00[p]	196.00[p] [w]	.....	.....	35.00[vp]	45.00	40.00[bbe]	30.00[bbe]	42.00[bbde]
Montreal	165.00[aq]	181.00[au]	325.00[au]	230.00	248.00[s]	.....	39.50	46.00	34.80	22.00	13.75[u]
New Orleans	170.00	170.00	310.00	380.00	.....	.....	31.00	.....	.....	28.00	28.00
New York	147.30[h]	157.10[h]	216.00[eh]	238.10[hn]	.....	.....	41.00	.....	36.00	32.00	.....
Philadelphia	156.30	166.80	312.70	375.20	.....	.....	30/34	35/43	27.60	25.60	3.17
Pittsburgh	138.00	151.00	260.00	228.00	297.00	341.00	36.00	46.00[y]	25.00	23.00	2.97[m]
St. Louis	150.00[cc]	168.50[cc]	332.50[cc]	465.00[cc]	439.00	621.50	41.50[al]	43.00[s]	.90[aaa]	.75[aaa]	1.25[aaa][rss]
San Francisco	156.85[a*]	177.10[a*]	235.30[dda*]	.....	.....	.....	37.00	.....	26.60	26.60	2.65[m]
Seattle	223.00[ee]	230.00[ee]	320.00	240.00[eew]	.....	.....	39.00[s]	49.00[s]	42.00[aaa]	37.50	3.90[mhh]

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverized hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7½ x 7½ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. yard; ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 500-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases In oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 55-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 300 lb. bbl. per ton
Atlanta	$17.75	$28.275	$3.26	$3.51	$3.01	$2.95	$3.01	$2.98	$0.405	$39.75
Baltimore	17.50	27.90	2.75	4.25	3.35	2.60	4.43	4.43	.47	45.00
Birmingham	17.75	28.275	3.90	3.40	....	2.93	2.93	2.93	....	42.00[ee]
Boston	17.50	27.90	....	....	....	2.97[gg]	2.82[oo]	2.82[oo]	.42[g]	50.50[g]
Chicago	17.50	27.90	....	....	....	2.91[tu]	2.86[to]	2.86[to]	40.00[tbbr]	50.00[t]
Cincinnati	17.50	27.90	....	....	....	2.65	2.46	2.46	.46[y]	49.36
Cleveland	17.50	27.90	2.19[pgg]	2.47[gg]	2.50[gg]	2.65[q]	2.46[o]	2.46[o]	.40[y]	42.70[hh]
Dallas	17.75	28.65	....	4.05	....	3.50[q]	3.75[o]	4.35[o]	.36	58.50[hh]
Denver	18.00	28.40	3.29	5.15	3.04	2.65	2.25[o]	2.35[o]	.43[ff]	45.00
Detroit	17.50	27.90	2.35	3.25	2.50	2.65	2.46[f]	2.46	.50	46.00
Kansas City	17.50	28.65	3.45	3.00[ys]	2.65	2.49	2.31[o]	2.31[o]	.38	57.00
Los Angeles	17.50	28.15	3.30[n]	4.50[n]	4.20[n]	3.10[n]	2.00[en]	[y]	.64[n]	[l]
Minneapolis	17.50	29.88/28.02	....	....	....	2.65[sdd]	2.46[hidd]	2.46[hidd]	.44½[dd]	44.00[r]
Montreal	....	21.95	2.95[n//]	4.05[n//]	3.25[r/]	4.00[t]	3.65[tf]	3.65[t]	1.06[bt]	3.30[h]
New York	17.50	27.90	....	....	....	2.65[e]	2.46[eo]	2.46[eo]	.44[ez]	44.00[e]
Philadelphia	17.50	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	17.50	27.90	2.65	2.85	3.15	2.75	2.60[o]	2.60[o]	.38	49.00
St. Louis	17.50	27.90	....	....	....	2.50	2.46[h]	2.46[h]	.40[y]	48.45
San Francisco	17.50	28.15	2.40	....	3.40	2.95	4.00[aa]	....	.49	.....
Seattle	17.50	28.40	3.07[mee]	2.93[mee]	....	3.45[moee]	2.91[hmee]	....	.59[mee]	52.00[mee]

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. *p* 6-drum, 50 gal. ea. *q* Per 90-lb. roll. *r* F.o.b. factory, Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bb* Roofers coating and cement; Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt pitch in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *D.* Std Black. *E.* Ready-mixed. *F.* Over 80% ferric oxide. * Aver. wt. approx. 425 to 550 lbs. drum. # Freight allowed to destination not exceeding .50 cwt.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const
Atlanta	$3.10	$2.50	$2.85	$2.60	$2.75	$2.90	$2.90	$1.33	$1.33
Baltimore	3.20[d]	2.75	3.325[f]	3.10/3.25	3.075[f]	2.975	2.975[f]	1.675[f]	1.675[f]
Birmingham	3.25	2.50	2.925[h]	2.32	2.72	3.00	3.025[h]	1.375	1.475
Boston	3.185[s]	2.75	3.325[f]	3.20	3.30[f]	3.13[z]	3.20[d]	2.14[r]	2.14[r]
Chicago	3.55[h]	3.30[s]	3.40[h]	3.15[w]	3.625[s]	3.53[f]	3.39[s]	2.50[h]	2.50[h]
Cincinnati	3.325	3.075	3.19[h]	2.85/3.35	3.10	3.28[w]	3.335V	2.12	2.02
Cleveland	3.375[f]	3.325[d]	3.325[f]	3.175	3.325	3.325	3.325[s]	2.575	2.575
Dallas	3.50	2.75	2.875	2.75	3.437	3.00	3.00	1.45	1.45
Denver	3.50	2.85	2.85	2.78	3.375[f]	3.00	3.05	1.875	1.875
Detroit	3.45[ss]	3.21[sv]	3.35[s]	3.20[v]	3.49[dl]	3.52[ff]	3.125[h]	2.45[s]	2.45[s]
Kansas City	3.625	2.75	2.90	2.725/2.97	3.25	3.18[s]	3.20[h]	2.03	2.03
Los Angeles	3.40	2.825[m]	3.175[h]	2.72[d]	3.56[s]	3.20	3.35[s]	2.15[f]	2.15[f]
Minneapolis	3.225	2.80	2.97	2.75	3.00	3.15[n]	3.00	2.05	2.05
New Orleans	3.10	2.52	2.90[m]	2.70	2.725	3.00[h]	3.00[s]	1.425	1.425
New York	4.15[hr]	3.87[hj]	3.975[s]	3.84[j]	4.15[d]	3.63[as][r]	3.815[hL]	2.415[s]	2.415[j]
Philadelphia	3.92[i]	3.20	3.63[iM]	3.07/3.82[s]	3.625[S]	3.80[ss]	3.615[s]	1.95	2.25
Pittsburgh	3.625[h]	3.20[h]	3.225[h]	3.35[h]	3.375[h]	3.50	3.375[h]	2.10[h]	2.10[h]
St. Louis	3.62[c]	3.125[h]	3.10[h]	3.125[h]	3.25[h]	3.50[c]	3.39[#]	2.175[h]	2.175[h]
San Francisco	3.65[s*]	2.98[h]	3.175[h]	2.835[s*]	3.50[mh]	3.30 U	3.35[K]	2.15[h]	2.15[h]
Seattle	3.40[d]	2.76[d]	2.95[d]	2.88	3.25[d]	3.135 X	3.26[F]	2.35[d]	2.35[d]
Montreal*†	2.00	1.80	1.90	1.70	2.00	1.90	1.90	1.25	1.40

* Cost of living bonus now included in basic wage. # Includes 5¢/hr tool replacement. † Plus 2% vacation pay.

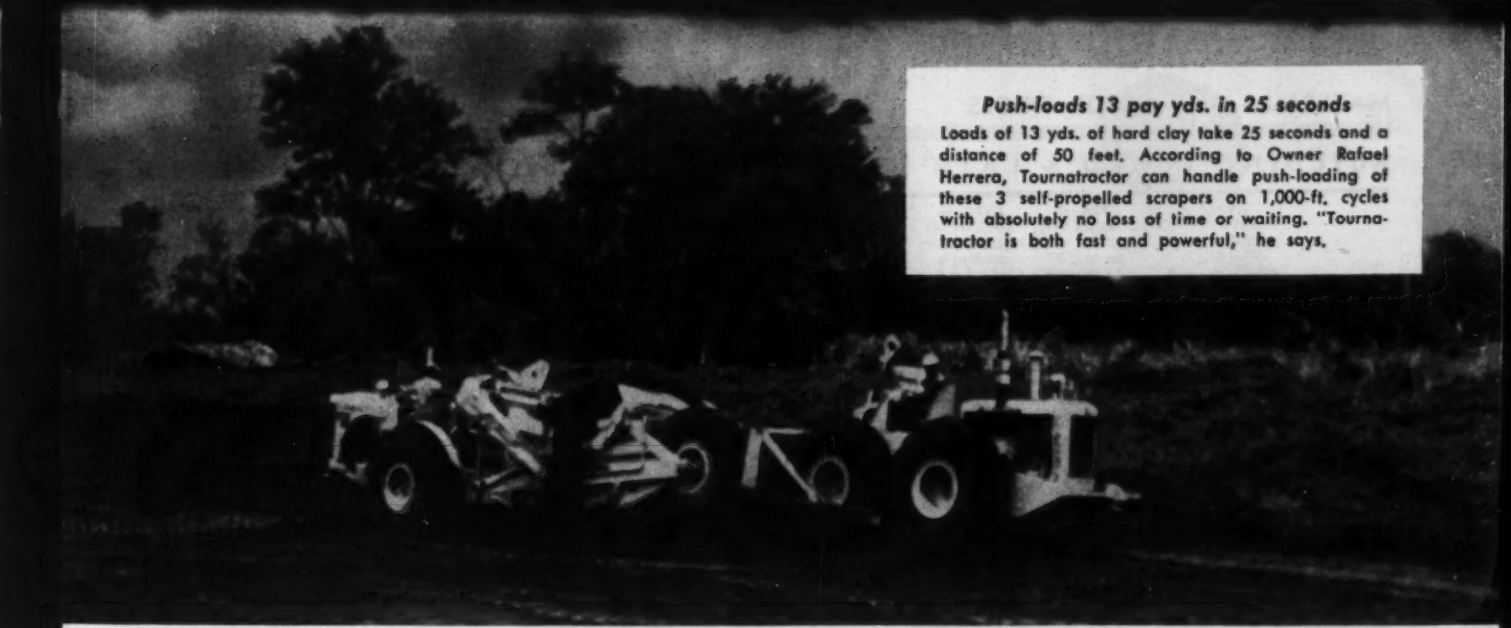
a 6 hr. day. *b* 7 hr. day. *c* Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF *d* Incl. 10¢ H&WF. *e* Incl. 10¢ VF. *f* Incl. 6% WF. *g* Incl. 11½¢ WF *h* $2.725 homes & housing plus 7½¢ WF. *i* Incl. 17¢ WF *j* Incl. 10½¢/hr. WF. *k* Incl. 7½¢/hr. WF. *l* Incl. 4% VF. *m* Incl. 5¢/hr WF. *n* Incl. 25¢ H, W, Ins., Vac. & Retirement. *o* Incl. 10¢ PF, 7¢ WF. *p* Incl. 3% WF, 3% PF. *r* Incl. 4% WF and 20¢ PF. *s* Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. *t* Incl. 7½¢ H&WF. *u* Incl. 1½% PF. *v* Incl. 10¢ WF. *w* Negotiating. *x* Incl. 8¢ WF. *y* Incl. 22½¢ WF. *z* Incl. 7½¢ IF, 5¢ H&WF. *A* Incl. 15¢ WF, 15¢ PF & 20¢ B.F. *B* Incl. 3% WF. *C* Incl. 2½¢ H&WF. *D* Plus 6% WF, plus travel pay per day. *F* Plus $4/per day Annuity contrib. *H* Incl. 7¢ WF, 6% VF. *I* Incl. 15¢ H&WF. *J* Incl. 5% WF, 6PH. *K* Incl. 10¢ WF, 12½¢ VF, 7½¢ PF. *L* Incl. 3% WF, 3% PF, 2% VF, 1% EF. *M* Incl. 7½¢ PF. *N* Incl. 1% WF. *O* Incl. 10¢ WF, 1% PF. *R* Incl. 12¢ WF and 1¢ apprentice. *S* Incl. 12½¢ H and WF. *T* Incl. 21¢ H, W & VF. *U* Incl. 7½¢ WF, 4% VF, 1% PF. *V* Incl. 10¢ WF. *W* Incl. 2% VF. *X* Incl. 6¢ VF. & 7½ H & WF *Y* Incl. 7¢ H & WF.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Dec '54	Jan '55
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Struct. Iron Workers (8 hr. day)	av. per hr.	1.37*	1.37*
Remachadores.	av. per hr.	1.37*	1.37*
Struct. Steel Shapes			
3"–15" x 12 meters	per metric ton	1428.62	1490.00
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1490.00	1490.00
½" x 11 meters	per ton	1490.00	1490.00
⅝" x 11 meters	per ton	1490.00	1490.00
¾" x 11 meters	per ton	1490.00	1490.00
⅞" x 11 meters	per ton	1490.00	1490.00
1" x 11 meters	per ton	1490.00	1490.00
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	73.00	69.00
Rose Gravel	per tr. load	66.00	62.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
3rd Class Pine	per M ft.	850.00	850.00
1st Class Pine	per M ft.	1500.00	1500.00
2nd Class Pine	per M ft.	1300.00	1300.00

* 1st & 2nd floors. Aver rate $4.38

ENR Skilled Average: (Bricklayers, Carpenters, Iron workers): $3.188 **ENR Common Average:** $2.022



Push-loads 13 pay yds. in 25 seconds

Loads of 13 yds. of hard clay take 25 seconds and a distance of 50 feet. According to Owner Rafael Herrera, Tournatractor can handle push-loading of these 3 self-propelled scrapers on 1,000-ft. cycles with absolutely no loss of time or waiting. "Tournatractor is both fast and powerful," he says.

International airport in Costa Rica

finished "ahead of schedule" after contractor puts rubber-tired tractor to work

Years ago, when few people traveled by plane, San Jose, Costa Rica, had what was considered an adequate air terminal. Although fog usually closed the field after 2:00 p.m., a few clear hours a day were sufficient to handle the traffic of the single regional airline serving the city. There was one unusual advantage, too. The field was only half a mile from San Jose.

By 1952, however, air travel had far outgrown these early facilities. The runway was too short for modern four-engine airships. No international airline would schedule flights to Costa Rica because the bad weather so often forced planes to turn back without landing. Even the near-city location of the airport had become a disadvantage. San Jose had grown so that city buildings now bordered the field on every side. This so limited approach clearance that even small aircraft had difficulty landing and taking off.

New site eliminates problems

Today, a new airport is under construction at a site which will eliminate all these problems. Extensive surveys made possible a location that often has clear weather when the rest of the valley is blanketed by fog. This field is far enough out so that it will not be near the city within the foreseeable future. There is room for approaches of at least 11 miles. An 8200-foot runway will handle any four-engine passenger plane. Distance from downtown San Jose is longer but with completion of a new super highway, the 9 miles will take only 15 minutes.

Crawler-tractor proves too slow

Despite the need for rapid completion of the project, work on the field was slow at first! The contractors Empresa Constructora Rafael. Herrera A. (Feluca) of San Jose — had only one crawler-tractor available for push-loading the 3 self-propelled scrapers being used on the 800,000 yd. project. One scraper always had to wait for loading. The job fell further and further behind schedule. The time limit for completion was drawing near and the contractors faced *daily* fines for not finishing by the agreed date.

Tournatractor keeps 3 scrapers working

A high-speed, rubber-tired Tournatractor, driven in under its own power from San Jose, solved the problem!

With Tournatractor's easy maneuverability, its 19 mph forward and 8 mph reverse speeds, it easily handled loading of all 3 scrapers without delays. The job soon was brought up to date, and continued to gain on the schedule. It was finished a month before the contracted completion date!

Difference between efficiency, inefficiency

Supervisor Ramon Blanco Vargas said, "It certainly was a pleasure to get the Tournatractor on the job and see all the machines begin to work in the manner for which they were designed. Tournatractor was the balancing point between an efficient job and an inefficient one."

More production, less effort

Easy-to-operate fingertip electric controls; well-designed seat with foam-rubber cushion; and big, low-pressure rubber tires instead of hard riding grinding tracks — all contributed to operator efficiency and comfort.

Operator Jose Garita said, "Other operators were fagged out at the end of a day. Guess I had the best job of all. My machine produced more with much less effort."

Fast, rubber-tired LeTourneau-Westinghouse equipment can mean greater production at less cost on your projects, too. For more information on these modern tools, see your Distributor or write directly to Peoria, Illinois.

Tournatractor—Trademark T-502-A-b

LeTourneau - Westinghouse Company

PEORIA, LeT ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft		GYPSUM BOARD LATH plain or perf per Msq ft	GYPSUM SHEATHING tongue & groove per Msq ft	FIBER BOARD SHEATHING asph impreg & coat per Msq ft		FIBER BOARD INSULATION sq edge, paint per Msq ft	MINERAL WOOL INSULATION† loose, per 40-lb bag	MINERAL WOOL INSULATION† 3" batts per M sf	GLASS FIBER INSULATION† loose, per 40-lb bag	GLASS FIBER INSULATION† 3" batts per M sf	ALUMINUM FOIL per roll of 250 sf Single	ALUMINUM FOIL per roll of 250 sf Double
	½"	⅝"	⅜" x 16" x 48"	½" x 2' x 8'	½" sq ed	½" T&G	½"	a		a			
Atlanta	.....	$60.00	$40.00	$70.00	$54.00	$91.00	$53.00	$1.08	$56.00	$1.45[b]	$56.00	.....	.....
Baltimore	$46.50[f]	41.00[f]	31.00[f]	52.50[f]	62.00[f]	104.00[f]	66.00[f]	1.30	65.90	1.60	45.00	$4.25	$6.35
Birmingham	67.00	56.00	46.75	75.00	64.55	107.10	64.55	1.32	72.00	1.75	77.00	3.46[g]	5.20[g]
Boston	46.50[m]	41.00[m]	31.50[m]	48.00[m]	64.00[m]	109.00[m]	77.00[hh]	1.45	75.00	1.40	41.00	5.30	7.90
Chicago	67.00	50.00	34.00	50.00	77.00	113.00	73.00	1.60	84.00	.....	62.00	5.25	7.50
Cincinnati	44.01[w]	38.08[w]	30.08[w]	45.51[w]	59.00[w]	98.50[w]	58.50[w]	.....	61.00	1.25	75.00	5.95	8.95
Cleveland	45.50	36.50	40.00	65.00	75.00	110.75	75.00	1.35/1.50	75.00	2.20	60.00	0.045[p]	0.055/0.6[p]
Dallas	55.00	52.50	40.00	62.50	73.50	122.50	70.00	1.90	65.00	1.35	65.83	4.25	6.35
Denver	60.00	52.50	40.00	60.00	72.90	123.00	71.90	.....	71.00[x]	1.30	50.00	11.00[r]	21.00[r]
Detroit	55.00	48.50	35.75	54.00	58.00[ee]	115.00[ee]	58.00[ee]	.....	77.00[dd]	1.95[h]	.....	.....	.....
Kansas City	65.00	55.00	40.00	65.00	72.00	120.00	75.00	1.40	80.00	1.40	80.00	0.0175[p]	0.025[p]
Los Angeles	50.00	45.00	0.31[e]	53.00	71.87	121.25	70.00	.....	80.00	1.35[ef]	48.00[f]	17.00[r]	25.40[r]
Minneapolis	64.00	75.00	0.40[e]	65.00	70.00	114.00	70.00	1.30	78.00	1.30	78.00	6.50	9.00
Montreal	58.00	.....	39.00	64.00	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Orleans	65.00	50.00	45.00	65/70	65.00	100/115	70.00	1.95	79.00	.....	.....	15.66[w]	27.66[w]
New York	50.00	44.50	34.00	51.00	65.00	108.00	65.00	1.55	69.00	1.55	72.00[f]	5.20	7.00
Philadelphia	50.00	48.00	34.00	48.50	67.50	105.00	49.20	.....	70/75	65/75	70/75	5.50/6	7/7.50
Pittsburgh	65.00	55.00	40.00	68.00	60.00	102.50	57.50	1.80	70.00	1.80	70.00	4.00	6.00
St. Louis	60.00	57.50	38.00	58.00	60.00	110.00	70.00	1.75	75.00	1.20	45.00	3.00	4.50
San Francisco	49.00[c]	41.50[c]	0.33[e]	53.00[k]	.....	94.00	60.25	1.60	72.00	1.55	53.00	4.78	7.50
Seattle	57.00	50.50	40.00	59.00	71.40	120.35	70.20	1.50	81.00	1.65	62.00	4.25[g]	6.75[g]

[a] for hand packing [b] per 30# bag [c] carloads [d] 4", fob Alexandria, Ind [e] 56,000 sq ft up quantity [f] full trailer loads [g] 80# kraft paper backing [h] LCL [i] flameproof $75.00 [j] 11,000 sq ft up quantity [k] plain core; asph core $56/M sq ft [l] 2-in: $52/M sq ft [m] 10 ton quantities [n] distributor's siding [o] per Msf rol [p] per sf [q] per cwt [s] per 27# bag [t] fob plant, Santa Clara [u] honeycomb, 1¼-in [v] honeycomb, 2½-in [w] fob city [z] per sq. yd.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER†		VERMICULITE†			ALUMINUM SHEET[a]		STAINLESS STL SHEET[a]-TYPE 302[p]		COPPER WATER TUBING-TYPE L 2000 ft lots per ft[a]	
	Neat	Gauging	Home Insulation pellets	Plaster aggregate	Concrete aggregate[j] Treated	Concrete aggregate[j] Untreated	Flat[j] .102" th 36"x96" & 48"x144"	Corr roof .032" th 35"x12'	20 ga 48"x96–120"	28 ga 36"x120"	⅜"[b]	½"[c]
	per ton	per ton	per bag of 4 cu ft				per lb[f]	per sh[w]	per cwt[kk]	per cwt[mm]		
Atlanta	$29.00	$36.00	$1.45	$1.35	$1.50	.....	$0.350[m]	$7.067[n]	$53.68	$61.18	$14.49[f]	$20.29[f]
Baltimore	20.16	32.00	0.95	1.15	.....	$1.15	0.370	4.377[r]	52.75	60.25	0.145	0.20
Birmingham	32.00	43.00	1.30	1.35	1.80	.....	0.379	7.809	52.90	61.65	0.1449	0.2029
Boston	21.00	.....	1.15	1.18	.....	1.30	0.414[q]	23.60[ee]	52.00[dd]	57.50[dd][ff]	0.1449	0.2029
Chicago	24.60[ll]	24.60[ll]	1.45	1.50	1.50/1.60	.....	0.416[e]	8.40[g][p]	56.25[ee]	63.75[ee]	0.1449	0.2029
Cincinnati	25.00[*]	22.00[*]	.....	1.75	1.75	1.75	0.408	9.72	56.10	69.10[ff]	0.1449	0.203
Cleveland	26.00	40.00	1.25	1.32	1.40	.....	0.359	7.37[oo]	52.00	59.50	14.49[f]	20.29[f]
Dallas	29.80	31.80	1.20	1.25	1.30	.....	0.379	0.439[r]	55.50	63.00	0.1449	0.2029
Denver	24.00	24.00	1.40	1.35	.....	1.50	0.379	8.339	54.07[ee]	61.50[ee]	0.1449	0.2029
Detroit	24.00	24.00	1.27	1.33	1.42	1.42	0.416	9.717	56.25	63.50	n.a.	0 1449
Kansas City	28.00	35.00	1.20	1.30	1.40	.....	0.359	7.77	54.77[ee]	62.27[ee]	14.49[f]	20.29[f]
Los Angeles	25.00	26.00	1.25[ii]	1.20[ii]	1.45[ii]	1.25[ii]	0.359	8.48	58.60	67.85	0.1449	0.2029
Minneapolis	31.00	31.00	1.30	1.60	.....	1.80	0.425	7.68	56.76	62.26[ff]	0.1375[d]	0.1925[d]
Montreal	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Orleans	35.00	37.00	1.50	1.20	1.25	1.25	0.359	0.366[oo][kk]	56.68	64.18	0.1449	0.2029
New York	23.00	29.00	1.25[ll]	1.20[ll]	1.40[ll]	1.30[ll]	0.389[g][ee]	7.74[g]	54.82	62.32	15.18[f]	21.29[f]
Philadelphia	23/25	32.00	1.35	1.35	1.35	1.40	26.50[g][ee]	7.55[g]	53.23[g]	60.98[g]	14.49[f]	20.29[f]
Pittsburgh	25.00	29.00	1.25	1.25	1.30	1.25	0.42	28.00	53.70	59.20	0.23	0.28
St. Louis	.....	.....	1.25	1.50[ii]	1.50[ii]	.....	0.379[ee]	8.339[e]	53.14[kk]	71.14[kk]	14.49[fm]	20.29[fm]
San Francisco	24.00	26.00	1.05	1.03	.....	1.24	0.400	0.340[cc]	61.00	68.00	0.1449	0.2029
Seattle	33.00	36.50	1.45	1.25[k]	1.65	.....	0.359	7.067	60.50[ee]	68.00[ee]	0.1449	0.2029

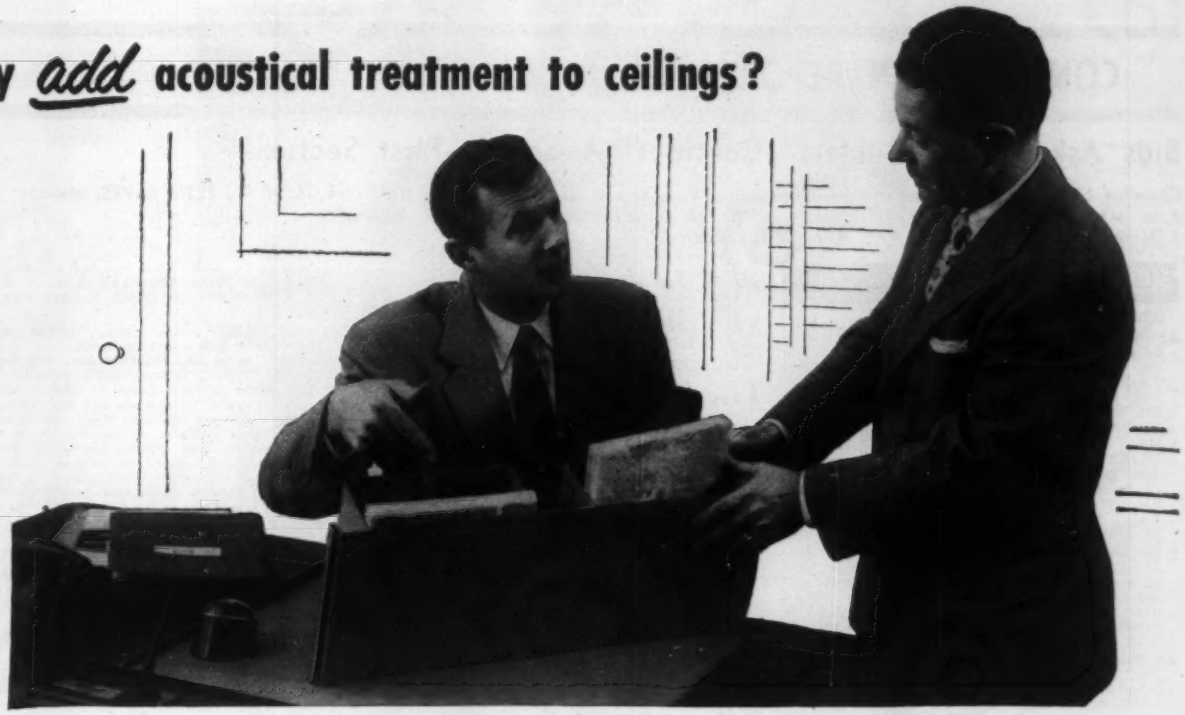
† truckIots, delivered * fob whse # delivered [a] fob city [b] ½" O.D. [c] ⅝" O.D. [d] 10M ft & over [e] 2–10M ft; 10M ft & up: $0.1925/ft [f] per 100 ft [g] 5 tons & up; cold roll, anneal & pickled; 2B finish [k] 15M lb [l] 3003 alloy; 1100 alloy: $0.406/lb [m] 1100 & 3003 alloy, mill finish [n] per bag of 3 cu ft [o] treated has air entraining agent; untreated does not [q] 2–10M ft [r] fob plant, fr allow [s] 5M lb & up [p] 100 sq ft quantity [z] 2M lb quantity [v] per lb [w] 36"x96" 10'81 lb/sh; 48"x144":21.7 lb/sh [x] 19.31 lb/sh [y] in 4M-lb skids; $0.296/lb in 1M-lb cases [aa] 48"x144" [ee] 36"x96" $13.25/sh [ff] per 100 sq ft [gg] 16M lb & up [hh] fob mill [ii] 28"x6-12' [dd] add $0.75/cwt for boxing [ee] 4 tons & up [ff] 26 ga [oo] add $2/cwt boxing; $0.75/cwt on skids [kk] Theoretical wt for 48"x96"; 50.4-lb, per sh. [ll] 300-bag lots [ii] per 100-lb bag [kk] mill shipment; add $2 per cwt for immediate del [ll] Revised, eff 1/1/55 [mm] Theoretical wt: 19.7-lb per sh

EQUIPMENT OPERATOR WAGE RATES

	Truck drivers 1½ T	Truck drivers —4 cy Dump	Truck drivers +4 cy	Tractor Operators incl bulldozers 34–49 hp	Tractor Operators incl bulldozers 70–100 hp	Tractor Operators incl bulldozers 100 & over	Tractor scraper 15–16 cy	Power cranes & shovels ½ cy	Power cranes & shovels ¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	1.40	1.40	1.60	2.335	2.335	2.335	2.325	2.85	2.85	2.325	2.10	1.55
Baltimore	1.65[e]	1.80[e]	1.90[e]	2.45/2.60[h]	2.45/2.60[h]	2.45/2.60[h]	2.45/2.60[h]	3.10/3.25[h]	3.10/3.25[h]	2.45/2.60[h]	2.45/2.60[h]	2.25
Birmingham	1.37	1.65	1.92	2.385	2.385	2.385	2.525	2.525	2.525	2.385	2.11	1.45
Boston	1.94[bc]	.....	.....	2.825[d]	2.825[d]	2.825[d]	2.825[d]	3.20	3.20	3.20	2.555	2.18[e]
Chicago	1.90[f]	.....	.....	2.85[g]	3.00[k]	3.05[ff]	2.85[gg]	3.30	3.30	2.95[gg]	2.95[gg]	.....
Cincinnati	2.00[f]	2.00[f]	2.00[f]	2.85	2.85	2.85	2.85	3.10	3.10	3.10	3.10	3.10
Cleveland	2.42	2.42	2.42	3.05	3.05	3.05	3.05	3.30	3.30	3.05	2.925[k]	2.925
Dallas	1.45	1.45	1.45	1.45/2.625[l]	1.50/2.625[l]	1.50/2.625[l]	1.50/2.625[l]	1.50/2.625[l]	1.60/2.625[l]	1.50/2.625[l]	1.45/2.00[l]	1.45/1.55[l]
Denver	2.00	2.00	2.10	2.00	2.61	2.61	2.61	2.78	2.78	2.61	2.61	2.225
Detroit	2.31[e]	2.31[e]	2.31[e]	3.20[m]	3.20[m]	3.20[m]	3.20[m]	3.20[m]	3.20[m]	3.20[m]	2.925[m]	.....
Kansas City	1.99[n]	1.99[n]	2.065[p]	2.175	2.725[q]	2.725[q]	2.725[r]	2.97	2.97	2.585[s]	2.725[t]	2.115
Los Angeles	2.255[u]	2.255[u]	2.285[u]	2.80[m]	2.80[m]	2.80[m]	3.21[m]	3.03[m]	3.03[m]	2.94[m]	2.50[m]	2.41[m]
Minneapolis	2.05	2.05[e]	2.20[e]	2.43	2.65[e]	2.87[e]	2.65	2.87[p]	3.13[e]	2.43	2.32	2.15
New Orleans	1.525	1.525	1.525	2.70	2.70	2.70	2.70	2.70	2.70	2.70	2.10	1.60
New York	2.12¼[aa]	2.52[hh]	2.52[hh]	3.176[cc]	3.176[cc]	3.176[cc]	3.31[cc]	4.095[cc]	4.095[cc]	3.31[cc]	3.31[cc]	2.78[cc]
Philadelphia	1.825/2.025[w]	1.825/2.025[w]	1.825/2.025[w]	3.07/3.82[m]	3.07/3.82[m]	3.07/3.82[m]	3.07/3.82[m]	3.07/3.82[m]	3.07/3.82[m]	3.07/3.82[m]	2.89[m]	2.05[m]
Pittsburgh	2.125	2.125	2.125	2.875	3.125	3.175	3.175	3.275	3.275	3.175	3.175	2.125
St. Louis	2.10	2.10	2.10	3.125[w]	3.125[w]	3.125[w]	3.125[w]	3.125[w]	3.125[w]	3.125[w]	2.525[w]	2.10
San Francisco	2.10	2.10	2.33[w]	2.845	2.845	2.845	2.845	3.175	3.175	3.005	2.455	2.175
Seattle	2.405[n]	2.405[dd]	2.605[ee]	2.53	2.73	2.73	2.73	3.08	3.08	2.83	2.53[kk]	2.40
Montreal	1.25	1.25	1.25	1.63	1.63	1.63	1.63	1.89	1.89	1.63	1.70	1.50

[a] incl 5¢/hr HWF [b] straight time, broken, $3.25 [c] 2-axle; 10-wheel $2.00; Euclid $2.20 [d] intermediate [e] bldg contr; highway $2.075 [f] less than 2-t [g] blade [h] scoop, bldg [k] scoop, road [l] plus $2 pd by employer for hosp, death benefits to family [n] bldg constr; steel constr $3.30 [o] higher rates are union, other taken from min wage scale approved by County Commissioners Court [q] incl 10¢ H&WF [r] flatbed [s] under 10 cy [p] over 10 cy [q] over 50 hp [r] blade grader [s] form and sub-grade [t] single [w] incl 7½¢ HWF [x] up to 6 cy [z] 6–8 cy [z] cat oper [y] up to 3½ cy [z] 3½ cy & over [aa] applies to local 807 [bb] incl 3% WF, 2% PF, 11 PH [cc] incl 5% WF [dd] up to 5 cy [ee] 5 cy & over [ff] Retro 1/3/55 [gg] Retro 1/1/55 [hh] excavating

Why *add* acoustical treatment to ceilings?



. . . with this new structural panel it's *built right in!*

Here's a ceiling with a "built-in silencer"! It's formed of remarkable acoustical-structural, cellular steel, long-span Fenestra* Building Panels with an *integral* acoustically perforated steel ceiling surface. An efficient sound-deadening material is enveloped within the cells—no acoustical material need be "stuck on"—there's nothing to come loose and fall down. And you don't spend an extra penny for special labor for this acoustical treatment!

This "package" unit acts as the ceiling and the joist and deck support for finished roof or—if your building has extra stories—a strong, sturdy subfloor for rooms above. Fenestra Steel Panels are noncombustible, are durable for the life of the building and handsome enough for the finest building. Maintenance washing or painting won't affect the acoustical efficiency. Little wonder there's such tremendous economy in using these versatile Fenestra Building Panels!

For complete details, call your Fenestra Representative. He's listed in the Yellow Pages. Or write to Detroit Steel Products Company, Dept. ER-2, 2286 East Grand Blvd., Detroit 11, Michigan.

*Trademark

Fenestra | **ACOUSTICAL PANELS**

Architectural, Residential and Industrial Windows • Metal Building Panels
Electrifloor† • Roof Deck • Hollow Metal Swing and Slide Doors

†⊕

PANELS are laid over the rigid steel frame during course of erection, combining in one unit acoustical ceiling, joist and deck. Be sure to investigate before you plan your next building! Once your building is started, it's too late!

MORE AND MORE schools are using this acoustical-structural material. Willard Elementary School, Willard, Mo., uses 20,000 sq. ft. Architect: I. Dale Allmon, Springfield, Mo. Contractor: DeWitt Construction Co., Springfield, Mo.

ANOTHER SCHOOL INSTALLATION in Trumbull Elementary School, Trumbull, Connecticut, uses 14,000 sq. ft. Architect: Lyons & Mather, Bridgeport, Connecticut. Contractor: E. R. Smith, Inc., Stratford, Connecticut.

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲† **Mass., Falmouth** — ROADS AND UTILITIES — BA 2/16—U. S. Eng., 857 Commonwealth Ave., Boston, roads, utilities, Otis Air Force Base, ENG-19-016-55-74, $1,000,000-$1,250,000. Plans deposit $25, Buerkel & Co., Inc., 24 Union Park St., Boston, archts. Haley & Ward, 73 Tremont St., Boston, engrs.

† **Mass., Chicopee Falls**—AMMUNITION STORAGE FACILITIES—BA 2/17—U. S. Eng., 857 Commonwealth Ave., Boston, ammunition storage facilities Westover Air Force Base, ENG-19-016-55-77. $100,000-$200,000. Plans deposit $10, refundable. McClintock & Craig, Inc., 458 Bridge St., Springfield, archt. CD 1/19.

† **Me., Limestone**—SHOPS—BA 2/18—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., organization of supply and maintenance shops, locomotive shop and parachute bldg., Loring Air Force Base, ENG-19-016-55-75, $200,000. Plans deposit $10, Eaton W. Tarbell & Assoc., 84 Harlow St., Bangor, engrs. CD 1/13.

▲† **Maine**—BA 2/23—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., dredging Portland Harbor, deepening Anchorage area to 35 ft., Portland, CIVENG-19-016-55-26, $1,000,000. CD 6/9/44.

▲ **MASSACHUSETTS**—BA 2/23—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
Grafton and Milbury—Contr. 51-081 hy. and bridge constr. $2,400,000. Plans deposit $70, Howard, Needles, Tammen & Bergendoff, 80 Boylston St., Boston, engrs. CD 8/11.

† **Mass., Chicopee Falls**—WAREHOUSE—BA 2/25—U. S. Eng., 857 Commonwealth Ave., Boston, A. C. and troop supply warehouse Westover Air Force Base, ENG-19-016-55-35, $500,000-$600,000. Plans deposit $10, refundable. Ganteaume & McMullen, 99 Chauncy St., Boston, engrs. CD 1/19.

▲ **MASSACHUSETTS** — BA 3/1 — Massachusetts Turnpike Auth., 80 Boylston St., Boston,
Russell and Blanford—Contr. 51-030 hy. and bridge constr. $3,000,000. Plans deposit $60, Howard, Needles, Tammen and Bergendoff, 80 Boylston St., Boston, engrs. CD 8/11.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **T. C. Bateson Constr. Co.**, 6800 Denton Dr., Dallas, Tex. CA **$672,400**, est. $700,000-$800,000. two multi-purpose hangars Dow Air Force Base, ENG-19-016-55-66, BANGOR, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. CD 1/31, under LB.

▲† **T. C. Bateson Constr. Co.**, 6800 Denton Dr., Dallas, Tex., CA **$2,738,150**, est. $3,000,000-$3,500,000. nine multi-purpose hangars, Portsmouth Air Force Base, ENG-19-016-55-62, PORTSMOUTH, N. H. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Jan. 7. CD 1/11, under LB.

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
M. DeMatteo Constr. Co., 200 Hancock St., Quincy, Mass. LB **$4,789,168**. Contr. No. 51-091 hy. and bridge at Framingham. Bids Jan. 27. CD 1/4.

BUILDINGS

LOW BIDS AND CONTRACTS

J. L. Marshall & Sons, Inc., 560 York Ave., Pawtucket, R. I. LB **$697,966**. Junior High SCHOOL, Newman Ave., SEKONK, MASS. Town, Junior High School Bldg. Comn., J. A. Thompson, chn., c/o Supt. Schools, Seekonk, Mass. Bids Jan. 27. CD 1/11.

Nanni Building Co., Valley View Dr., Johnson, R. I. LB **$524,000**, est. $500,000. alterations and addns. Main KITCHEN & CAFETERIA SECT., Hospital for Mental Diseases, HOS 3: 5 No. 540, HOWARD, R. I. State of Rhode Island and Providence Plantations, F. A. Adams, purch. agt., State House, Providence, R. I. Bids Jan. 19. CD 1/4.

C. H. Nicherson & Co., P.O. Box 486, Torrington, Conn., LB **$551,900**, B. A. X-65, EMPLOYEES BLDG., State Training School, MANFIELD, CONN. State of Conn., Ralph G. Macy, P. Wks. Comr., State Office Bldg., Hartford, Conn. Bids Jan. 26. CD 12/29.

▲ **Green Manor Estates, Inc., Neil H. Ellis, prop., 685** Parker St., Manchester, Conn. Owner Builds, $1,100,000. second section, 95 RESIDENCES, Proprietors Hy. WINDSOR LOCKS, CONN. Rossetti & Di Corcia, 185 Main St., Bristol, Conn., archts.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **Md., Annapolis**—WATERFRONT REPAIRS—BA 2/18—Officer in Charge of Constr., U. S. Naval Academy, Annapolis, waterfront repairs (Hurricane Hazel) U.S. Naval Academy and U. S. Naval Station, NOY 84704, Spec. 44170. Plans deposit $10. CD 11/17/47, under Public Buildings.

† **N. J., Hoboken**—HEADHOUSE—BA 2/21—The Port of New York Auth., 111 8th Ave., New York 11, N. Y. Headhouse, Area 4, first floor alterations, Hoboken-Port Authority Piers, Contract HP-120.002. Plans deposit $30. CD 5/16/52.

† **Maryland and D. C., Wash.**—BA 2/24—U. S. Eng., First and Douglas Sts., N.W., Wash. D. C., local flood protection and navigation proj. Edmonston Pressure Conduit, Anacostia River Basin, CIVENG-49-080-55-33. CD 1/17.

▲† **New York**—BA On Or About 3/15—U. S. Eng., Engineer Park, Niagara and Bridge Sts., Buffalo, Zone 7, excavation 2,400,000 cu. yd. overburden materials, to expose the surface of rock over an approx. area, 200 x 1, 200 ft., const dike consisting of approx. 350,000 cu. yd. embankment with glacial till material obtained from the above excavation, for Grass River Lock, St. Lawrence Seaway, approx. 6 mi. northeasterly of Massena, St. Lawrence Co., in vicinity of confluence of Grass River and St. Lawrence River, Serial No. CIVENG-30-023-55-54 (for the St. Lawrence Seaway Development Corp.). Plans deposit $25. CD 12/17.

BIDS ASKED—BUILDINGS

† **Maryland**—BARRACKS, etc.—BA 2/15—U. S. Eng., P. O. Box 1715, Baltimore, Zone 3, Special AAA site incl. barracks, admin. bldg., near Tolchester Beach, ENG.-18-020-55-35. Plans deposit $100.

▲ **N. J., Jersey City**—COUNTY ADMINISTRATION—BA 3/10—Bd. Freeholders Hudson Co., Freeholders' Assembly Chamber at Hudson County Court House, Newark Ave., Contract No. 2, general construction No. 3, structural steel and ornamental iron work; No. 4, plumbing and gas pitting and kindred work; No. 5, steam and hot water heating and ventilating apparatus work; No. 6, electrical work; No. 7, elevator work for Hudson County Administration Bldg. Plans deposit $50. Mascola and Mausmian, 880 Bergen Ave., archts., adv. ENR 2/10. CD 5/14.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Wickes Engineering & Construction Co.**, 12 St. and Ferry Ave., Camden, N. J., CA **$139,894**, new antenna field installations, misc. alterations to electronic equipment space, U. S. Naval Air Station, Floyd Bennett Field, NOY 74765, BROOKLYN, N. Y. P. Wks. Office, Third Naval Dist., 90 Church St., New York 7, N. Y. Bids Dec. 21.

▲ **NEW JERSEY** — New Jersey Turnpike Auth., Administration Bldg., New Brunswick,
Brookfield Constr. Co., 521 Fifth Ave., New York, N. Y., CA, **$2,739,665**, Contract N-23, piers for West viaduct extending from Grand to Second Sts.; constr. piers, abutments for concrete deck for portion of Ramps A and B viaducts adjoining West viaduct, 6 piers for North Terminal Ramps at Erie R.R. Yards in vicinity of Tenth St.; new streets, removal of existing and constr. new pavements in existing streets, resurf. existing street pavements, etc., Jersey City, in connection with Newark Bay-Hudson County Exten., Hudson Co. Bids Dec. 21, awarded Jan. 5. CD 11/26.

PENNSYLVANIA—Pennsylvania Turnpike Comn., 11 N. 4 St., Harrisburg,
L. & H. Constr. Co., Bethlehem, Pa., LB **$738,225**, substructures of Lehigh River and Pohopoco Creek bridges and grading 0.4 mi. Northeastern Exten. of Turnpike, (Sec. 36-EF), Mahoning Twp. and Parryville Boro, Carbon Co. Bids Jan. 26. CD 1/4.

† **Ingleside Plumbing & Heating Co.**, Johnnycake Rd. and Ingleside Ave., Baltimore 17, Md., LB **$128,894**. 2 story, rein.-con. technical laboratory base bldg. Olmsted Air Force Base, Serial ENG-18-020-55-29, MIDDLETOWN, PA. U. S. Eng., P.O. Box 1715, Baltimore 3, Md. Bids Jan. 25. CD 1/5.

Ben Constr. Co., 101 Hargrove St., Pittsburgh, Pa. CA **$198,610**. road constr., Washington Blvd., 1 mi. asph. paving, 60,400 cu. yd. excavating, 18,500 sq. yd. base, 24,000 yds. slag base, Glassport, PITTSBURGH, PA. Bd. Comrs. Allegheny Co., County Office Bldg., Pittsburgh, Pa. CD 12/15/43.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2.
Frank Pecora Constr. Co., Inc., 204 E. Preston St., Baltimore 2, Md. LB **$107,548**. 4 span steel WF beam bridge to carry Eastbound lane of E. Patrick St. over Baltimore National Pike, Frederick, Contr. F 490-10-720, Frederick Co. Bids Jan. 25. CD 1/5.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Milstead & Wolfe, LaPlata, Md. LB **$140,124**. surf. 3.4 mi. State Rte. 2 from near Prince Frederick to Ward Lusby, Contr. C215-520, Calvert Co.;
Dickerson, Inc., Monroe, N. C. LB **$165,351**. surf. 2.214 mi. State Rte. 454, Marydel to Templeville, Contr. CO 223-1-220, Caroline Co. Bids Jan. 25. CD 1/5 and 1/11.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Blue Point Downs, Inc.**, c/o Nassau Homes Realty Corp., 1 N. Merrick Ave., Merrick, N. Y. Owner Builds. **$2,700,000**. 300 HOUSES, 50-acre tract overlooking Great South Bay, Brookhaven Twp., BLUE POINT, N. Y.

George Sohmer & Bernard Feuerstein, c/o Butterly & Green, Inc., 168-25 Hillside Ave., Jamaica, N. Y. Owner Builds. **$540,000**. 20 HOUSES, tract at Surveyor Ave. and Springfield Blvd., HOLLISWOOD, N. Y.

▲ **Robin Park Homes**, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. **$4,500,000**. 300 HOUSES, 93-acre tract Park Ave., north of Jericho Turnpike, HUNTINGTON, N. Y.

▲ **Suburban Park Homes**, c/o Trylon Realty, 98-69 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$2,500,000**. 250 HOUSES, Sunrise Hy. and Connetquot Ave., ISLIP, N. Y.

Parkway Homes, c/o Henry A. Klar Realty, 220-02 Horace Harding Blvd., Bayside, N. Y. Owner Builds. **$650,000**. 50 HOUSES, 226 St. and 144 Ave., LAURELTON PARK, N. Y.

▲ **Leider Constr. Co.**, c/o Schulman & Soloway, archts., 100-15 Queens Blvd., Forest Hills, N. Y. Owner Builds. **$5,000,000**. 140 HOUSES, 50-acre tract, Davenport Neck Sect., NEW ROCHELLE, N. Y.

▲ **Martin Kane & Milton Schwartz**, c/o Kern Realty Co., 124-26 Queens Blvd., Kew Gardens, N. Y. Owner Builds. **$2,000,000**. 200 HOUSES, 65-acre tract Coates and Grundy Aves. between SAYVILLE and HOLBROOK, N. Y.

▲ **E. J. Rappoli Co., Inc.**, 12 Norfolk St., Cambridge, Mass., CA **$1,126,282**, general constr. women's DORMITORY, Mt. Olympus, SYRACUSE, N. Y. Syracuse University, Admin. Bldg., Syracuse, N. Y. Bids Jan. 18. CD 1/27, under LB.

Jack Miller, c/o Stanley Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. **$500,000**. 34 HOUSES, 154 St. between 19 and 20 Aves., WHITESTONE, N. Y.

Willow Plaza Homes, c/o B. J. Bergton, 55 Cedar Lake, Teaneck, N. J. Owner Builds. **$750,000**. 44 HOUSES on tract on Teaneck Rd. off Van Buren St., TEANECK, N. J.

▲ **Owner**, c/o C. Frederick Wise, archt., 101 Charles Dr., Bryn Mawr, Pa., Separate Contracts, **$2,500,000**,

(Continued on page 86)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	Middle West
Middle Atlantic	West of Mississippi
South	Far West

PROPOSED WORK

Water Supply	Public Buildings
Sewers, Waste Disposal	Mass Housing
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

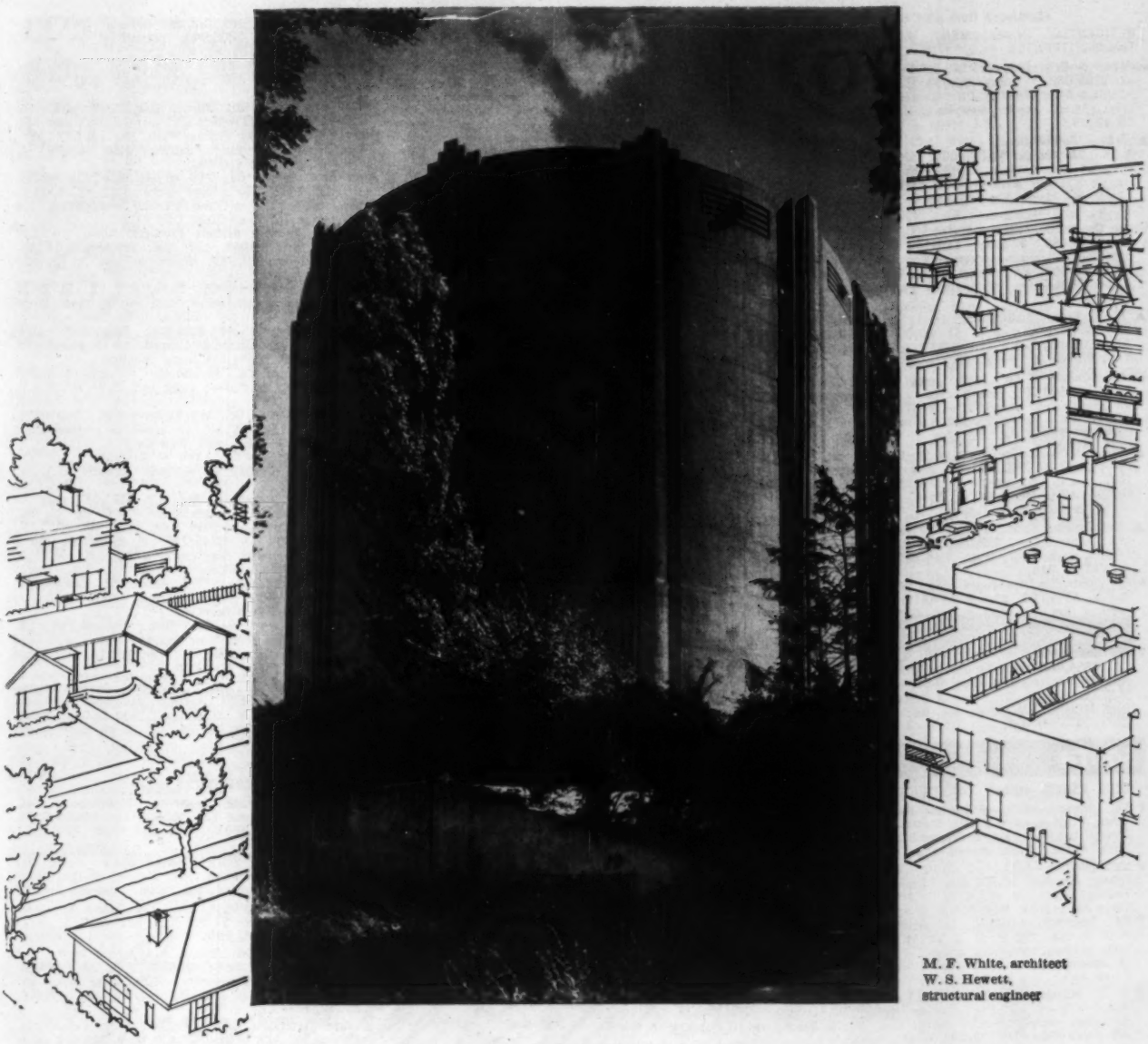
In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.



M. F. White, architect
W. S. Hewett,
structural engineer

FOR WATER TANKS OF DISTINCTION

CHOOSE *CONCRETE*

A WELL-DESIGNED concrete water tank such as this 675,750 gal. water tank in Waukesha, Wisconsin, not only is a distinctive landmark but has long-lasting utility as well. It was built in 1934 and has required no maintenance.

Any city, large or small, can obtain lasting benefits by building such a reinforced concrete water tank. Its sturdy construction gives it the durability to withstand the weathering action of any climate. Its enduring beauty makes it a structure of which the entire community always can be proud.

A reinforced concrete water tank can be erected in practically any location without marring the skyline or depreciating the appearance or value of the property in the area.

Best of all, reinforced concrete water tanks are more economical than other types. They require little or no maintenance. They retain their distinctive appearance over their long life. And they render ***low-annual-cost*** service—the true measure of construction value. Such service pleases taxpayers, engineers and municipal officials alike.

PORTLAND CEMENT ASSOCIATION

33 WEST GRAND AVENUE, CHICAGO 10, ILLINOIS

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work

(Continued from page 84)

RESIDENTIAL DEVELOPMENT, Parkway in Ewing Township, TRENTON, N. J.

Goodman & Bell, Inc., 725 N. 19 St., Allentown, Pa., CA $100,000. 1 story, 90x186 ft., masonry WAREHOUSE, ALLENTOWN, PA. United States Plywood Corp., 55 W. 44 St., New York, N. Y. Bids Jan. 4. CD 12/29.

▲ **Oradell Constr. Corp.**, 355 E. 149 St., New York 55, N. Y. CA Approx. $1,000,000. SHOPPING CENTER, tract on Rte. 1, near LEVITTOWN, PA. Thriftmart, Inc., c/o Edgar A. Levy, 505 Fifth Ave., New York 17, N. Y. Morris Lapidus, 256 E. 49 St., New York 17, N. Y., archt.

Byrum Constr. Co., 12 and Water Sts., Wheeling, W. Va. CA $139,480, 2 story, 110x140 ft., steel frame, block and aluminum panels welding and meter SHOP, WASHINGTON, PA. Manufacturers Light & Heat Co., Union Trust Bldg., Pittsburgh, Pa. Bids Jan. 11. CD 1/7.

▲ **E. R. Crown Constr. Co.**, 5603 Spruce St., Phila., Pa., Separate Contracts. $1,000,000. RESIDENTIAL DEVELOPMENT, WEST CHESTER, PA. Henry S. Berg, 1411 Walnut St., Phila., Pa., archt.

Murphy, Quigley & Co., 1518 Sansom St., Phila. 2, Pa. CA Est. $500,000, general constr., plumbing, heating, air-conditioning, electrical for RESTAURANT, WILLOW GROVE, PA. Horn & Hardart Baking Co., 208 S. Warnock St., Phila., Pa. Bids Jan. 5. CD 12/29.

▲ **Prescott Constr. Co.**, 1307 W St. N.W., Wash., D. C. CA Est. $1,200,000. STORE addn., SILVER SPRING, MD. Hecht Co., Seventh and F Sts. N.W., Wash., D. C. Abbott Merkt & Co., 10 E. 40 St., New York, N. Y., archts. CD 12/13/45.

▲ **Metropolitan Homes, Inc.**, 1907 Henry Rd., Rockville, Md. Owner Builds. $18,000,000. community of 1,200 HOMES on 268 acre tract, Viers Mill Rd., Aspen Hill, WHEATON, MD.

Aldon Constr. Co., Woodward Bldg., Wash., D. C., Owner Builds, $345,000, 55-unit APARTMENT HOUSE, Connecticut Ave. and Jocelyn Sts. N.W., WASH., D. C. E. W. Dreyfuss, 1019 15 St. N.W., Wash., D. C., archt.

Victor Beauchamp, Inc., 6837 4 St. N.W., Wash., D. C., CA, $864,468, est. $800,000, girls' HIGH SCHOOL, Academy of Jesus and Mary, Riggs and Metzerott Rds. N.E., WASH., D. C. Order of Jesus and Mary, Highland Mills, N. Y. Bids Jan. 18, awarded Jan. 24. CD 1/24, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Va., Norfolk**—ROOF REPAIRS—BA 2/15—P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Zone 11, repairs to roofs, Naval Supply Center, NOY 86498, Spec. 43136. Plans deposit $10.

† **Va., Quantico**—BUILDING ADDN.—BA 2/16—P. Wks. Office, Potomac River Naval Command, Naval Gun Factory, Wash., D. C., Bldg. 2124 addn. at Marine Corps Air Station, NOY 86406. Plans deposit $10.

† **Ga., Savannah**—AMMUNITION SHOP—BA About 2/20—U. S. Eng., 200 E. St. Julian St., ammunition shop, incl. grading, drainage, sewage disposal and paving of approach drives and parking aprons, Hunter Air Force Base.

† **S. C., Myrtle Beach**—WATER STORAGE TANK—BA About 3/6—U. S. Eng., Custom House, Charleston, furnishing, installing water storage tank, Myrtle Beach Air Force Base, No. 38-081-55-37.

† **S. C., Myrtle Beach**—WATER SYSTEM—BA About 3/6—U. S. Eng., Custom House, Charleston, water supply sys., Myrtle Beach Air Force Base, No. 38-081-55-38.

† **Fla., Homestead**—PARKING AREAS, etc—BA On or About 3/10—U. S. Eng., P.O. Box 4970, Jacksonville, paved parking areas (FY-53, 54, adn 55), Homestead Air Force Base, ENG-08-123-55-64.

BIDS ASKED—BUILDINGS

▲ **La., Shreveport**—HOSPITAL—BA 2/16—Sisters of Charity of Incarnate Word, 941 Margaret Place, 9 story, bsmt., brick, masonry Schumpert Hospital, at Margaret Place and Warrington Place, $5,000,000. Plans deposit $50, Neild-Somdal, 960 Jordan St., archts. CD 1/14.

La., Grambling—DORMITORIES—BA 2/17—State Bldg. Auth., State Capitol, Baton Rouge, 2 girls' dormitories at Grambling College. Plans deposit $50, Neild-Somdal Assn., 960 Jordan St., Shreveport, archts.

Ga., Tricon—SCHOOL—BA 3/1—State School Bldg. Auth., 41 Exchange Pl. S.E., Atlanta, Trion Elementary and High School addn. Plans deposit $50. Stevens & Wilkinson, 157 Luckie St. N.W., Atlanta, archts.

Va., Waynesboro—HIGH SCHOOL—BA 3/16—City, F. B. Glenn, supt. Schools, Waynesboro, Waynesboro High School addn. $650,000. Plans deposit $25. Smithey & Boynton, 112 W. Kirk Ave., Roanoke, archts. CD 10/5/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

VIRGINIA—Commonwealth of Va., Dpt. Hys., Central Highway Office Bldg., 1221 E. Broad St., Richmond,

Ames & Webb, Inc., P.O. Box 4055, Norfolk 2, Va. CA $602,239, c. conc. pavement, bit. top. 1.31 mi. Rte. 460-A, from 0.37 mi. S. Brambleton Ave. to 1.16 mi. N. Brambleton Ave. St. Proj. 7264-72. Fed. Proj. U-191 (1), Norfolk City. Bids Dec. 15, awarded Jan. 6. CD 12/20 under LB.

▲ **English Constr. Co.**, Alta Vista, Va., LB $1,257,000, sewage disposal plant, interceptor sewers, treatment plants, PETERSBURG, VA. City, Roy F. Ash, city mgr., City Hall, Petersburg, Va. Bids Jan. 27. CD 12/13.

▲ **MISSISSIPPI**—State Hy. Dpt., T. C. Robbins, dir., Jackson,

Boyd Constr. Co., Grenada, Miss. CA $99,245, est. $123,000. surf. tr. 11.815 mi. Miss. Hy. No. 30 between New Albany and Wheeler, F 044-1 (13), Union Co.; CA $415,160, est. $501,000. surf., box bridges, 13.182 mi. Miss. Hy. No. 9 between Bruce and Calhoun-Pontotoc Co. line, F 050-1 (4), Calhoun Co.;

Bud's Sand & Gravel Co., Amory, Miss. CA $93,910, est. $63,000. single bit. surf. tr. 3.771 mi. US Hy. No. 278 between US Hy. No. 45 and Amory, F 048-1 (6), Monroe Co.;

Paul Anthony Constr. Co., Inc., Tupelo, Miss. CA $360,887, est. $100,000. grade, bridges 6.189 mi. Miss. Hy. No. 9 between Ackerman and Eupora, F 050-1 (2), Choctaw and Webster Counties; CA $387,801, est. $450,000. surf. 7.465 mi. Miss. Hy. No. 32 between Bruce and Houlka, F 051-2 (3), Calhoun and Chickasaw Counties;

Evans Contg. Co., Quitman, Miss. CA $174,685, est. $206,000. surf. 2.04 mi. Miss. Hy. No. 7 between Avalon and Holcomb, F 019-1 (7), Carroll and Grenada Counties, CA $259,272, est. $303,000. grade, bridges 8.792 mi. Miss. Hy. No. 27 between Tyler Town and Monticello, F 045-1 (1), Walthall Co.;

Raley Contg. Co., Aberdeen, Miss. CA $241,706, est. $298,000. surf. 11.277 mi. Miss. Hy. No. 41 between Okolona and Troy, F 048-1 (4), Chickasaw and Pontotoc Counties;

W. L. Wells, 524 Mitchell St., Jackson, Miss. CA $314,264, est. $362,000. grade, bridges 9.631 mi. Miss. Hy. No. 569 between Louisiana-Mississippi State Line and Beachwood, S 0242 (1) A, Amite Co. Grand total $2,346,930. Bids Jan. 25, awarded Jan. 26. CD 1/13.

† **U. S. Eng.**, foot of Prytania St., New Orleans 9, La. rejected bids Jan. 19, 2,770,000 cu. yd. for Gulf Intracoastal Waterway, Port Allen Lock and Canal dredging, Indian Village to Morley, Inv. 55-150, Port Allen, LOUISIANA. New bids Jan. 31.

† **McWilliams Dredging Co.**, Box 584, New Orleans, La. CA $501,700. constr. Item C Avoca Island cutoff Bayou levee Second lift enlargement consisting of approx. 1,670,000 cu. yd. hydraulic fill, Terrebonne Parish, Inv. 55-128, LOUISIANA. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Jan. 4. Awarded Jan. 20. CD 1/14, under LB.

LOUISIANA—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., New Orleans, La. LB $1,873,265. interchange structures c.conc. 0.217 mi. Carrollton-Airline Interchange-Stage I (Pontchartrain Expressway), State Rte. 2200, S. P. 283-08-06, F. A. Proj. UI 409 (5), Orleans Parish. Bids Jan. 26. CD 12/22.

Boh Bros. Constr. Co., 2400 Cypress St., New Orleans, La. LB $276,945. Proposal 3101, double track concrete railroad underpass on Pontchartarin Blvd., NEW ORLEANS, LA. City, George Bosworth, purch. agt., City Hall, New Orleans, La. Bids Jan. 10. CD 12/15.

† **Farnsworth & Chambers Co.**, Box 332, New Orleans, La. LB $488,000. operations bldg., control tower, at Joint Air Reserve Training Center, Alvin Callender Field, NOY 82591, Spec. 42631, Belle Chase, NEW ORLEANS, LA. Eighth Naval Dist., Bldg. 16, Naval Station, New Orleans, La. Bids Jan. 18. CD 12/15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John W. Daniel**, P.O. Box 458, Danville, Va., CA $1,288,285, HIGH SCHOOL, Beverstone Park, DANVILLE, VA. City, Municipal Bldg., Danville, Va. Bids Jan. 11, awarded Jan. 24. CD 1/18, under LB.

E. A. Tharpe & Co., Box 4622, 8066 LaSalle St., Baton Rouge, La. LB $162,600. Development LABORATORY addn., BATON ROUGE, LA. Ethyl Corp., North Baton Rouge, La. Bids Jan. 21. CD 1/19.

MIDDLE WEST

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Howe Constr. Co., 215 Munroe Falls St., Cuyahoga Falls, O., CA $967,248. primary sewage treatment plant at Botzum, AKRON, O. City, Leo G. Walter, Serv. Dir., Municipal Bldg., Akron, O. Bids Oct. 6. CD 12/2, under LB.

Fairfield Mfg. Co., Marion, O., CA, $226,000. coal conveyor across the river, LOGANSPORT, IND. City Water Works, Logansport, Ind.

† **Russell F. Davis, Inc.**, 2100 South Eighth St., Lafayette, Ind., CA $554,552, paving and underground utilities, Bunker Hill Air Force Base, NOY 82787, PERU, IND. Officer in Charge of Constr. Bureau Yards & Docks, Contracts, Ninth Naval Dist., Bldg. 1-A, Great Lakes, Ill. CD 1/7/53.

▲ **ILLINOIS**—State Div. Hys., Centennial Bldg., Springfield,

Standard Paving Co., 308 W. Washington St., Chicago 6, Ill., LB, $377,612, c. conc. 3.69 mi. U. S. 66, LB $403,098, c. conc. 3.54 mi. U. S. 66; LB $691,536 c. conc. 6.08 mi. U. S. 66; LB $722,729 c. conc. 5.4 mi. U. S. 66; LB $762,712 c. conc. 5.78 mi. U. S. 66, all foregoing in Livingston Co.;

Trompeter Constr. Co., 2428 4 St., Peru, Ill., LB $73,717 bit. on gravel or crushed stone surf. 0.53 mi. F.A.S. 186, Lee Co.;

Mason & Meents Constr. Co., P. O. Box 202, Watseka, Ill., LB, $116,717, bit. on gravel or crushed stone surf. 5.25 mi. F.A.S. 313 Kankakee Co.;

Geneva Constr. Co., 303 Old 2nd National Bank Bldg., Aurora, Ill., LB, $208,944, intermittent bit. resurf. patching 8.09 mi. Ill. 47, Kane Co.;

Mitchell Constr. Co., 216 E. Madison St., Herrin, Ill., LB $104,070, c. conc. and bit. resurf. 0.91 mi. Ill. 148, Franklin Co.;

Sankey Bros., Inc., 402 Illinois Bldg., Springfield, Ill., LB, $134,175, bit. resurf. 6.13 mi. U. S. 67 Cass Co.;

Black Top Roads Co., Melrose Park, Ill., LB $104,688, intermittent bit. resurf., patching 4.88 mi. Ill. 53, Du Page and Will Counties.

Joyce Bros. Constr. Co., 715 Meyers Bldg., Springfield, Ill., LB, $528,325, c. conc. wid'n. 3.81 mi., c. conc. base course 1.9 mi. and granular embankment 0.4 mi. all on U. S. 67, Cass Co.;

Charles G. Gilmore Asphalt Products, Anna, Ill., LB, $96,542, bit. resurf. and conc. patching 5.51 mi. U. S. 51 and Ill. 37, Union, Johnson and Pulaski Counties;

Edgar Stephens Constr. Co., Cairo, Ill., LB, $173,971 c. conc. wid'n., bit. resurf. 0.81 mi. Ill. 146, Union Co.;

McCarthy Imprvt. Co., 601 Kahl Bldg., Davenport, Ia., LB $109,325, intermittent bit. resurf. 10.15 mi. Ill. 78 and 92, Rock Island and Henry Counties;

Producers Mining Co., Harrisburg, Ill., LB, $150,804 bit. on grav. or crushed stone surf. 5.94 mi. F.A.S. 937 Pulaski Co.;

J. D. Barter Constr. Co., 215 S. Jackson St., Harrisburg, Ill., LB, $134,468, bit. on gravel or crushed stone surf. 3.93 mi. F.A.S. 833, Pope Co.;

S. J. Groves & Sons Co., 1104 W. Reynolds St., Springfield, Ill., LB, $632,383, c. conc. 3.56 mi. U.S. 24, Peoria Co.;

Rein & Dahl, Stoughton, Wis., LB $121,380 grav. or crushed stone surf. course 3.87 mi. F.A.S. 90, Ogle Co.;

M. Hoeffken Co. & Hoeffken Bros., 222 W. "B" St., Belleville, Ill., LB, $145,235. c. conc. base course 0.61 mi., c. conc. base course wid'n. 1.51 mi. U.S. 40 By-Pass, Madison Co.;

Robt. A. Black, Inc., 13912 S. Halsted St., Chicago 27, Ill., LB, $92,480, c. conc. patching 28.58 mi. Ill. 47, Livingston and Ford Counties;

Gund Graham Co., State Bank Bldg., Freeport, Ill., LB, $234,800. c. conc. base course, wid'n. with bit. resurf. 0.08 mi., c. conc. 1.78 mi. Ill. 26, Stephenson Co. Bids Jan. 28. CD 1/17.

† **Douglas-Cloud Co.**, 1017 Penobscot Bldg., Detroit, Mich. CA $532,529. tactical and troop facilities, Detroit, MICHIGAN. U. S. Eng., 1900 Cadillac Tower, Detroit, Mich. Bids Jan. 28. CD 12/30, under Mich., Detroit.

BUILDINGS

LOW BIDS AND CONTRACTS

Bd. Trustees, Indiana University, Bloomington, Ind., rejected bids Dec. 22, MEMORIAL UNIT BLDG. addn., BLOOMINGTON, IND.

Lowell Lumber Co., Lowell, Ind., CA, $900,000. 90 HOMES, CROWN POINT, IND. W. E. Kurtz, 216 Joliet Rd., Crown Point, Ind. Kenneth Vaughn, 6714 Madison St., Hammond, Ind., archt. Awarded Jan. 24.

▲ **Rozhon Home Builders, Inc.**, 132 Berens St., Dyer, Ind., Own Forces, $1,300,000, 100 HOMES, DYER and SCHEREVILLE, IND.

Hagerman Constr. Co., Strauss Bldg., Fort Wayne, Ind. CA, $977,000. men's DORMITORY, VALPARAISO, IND. Valparaiso University, 651 College Ave., Valparaiso, Ind. Bids Jan. 5, awarded Jan. 24. CD 1/19, under LB.

▲ **Fred Teitelbaum Constr. Co.**, 5526 N. Kedzie Ave., Chicago, Ill., CA, $1,000,000, 1 story, 175,000 sq. ft. brick WAREHOUSE addn., CHICAGO, ILL. Sperry & Hutchinson Co., 4218 W. 42 Pl., Chicago, Ill. Awarded Jan. 25. CD 11/30.

▲ **L. J. Graf Constr. Co.**, 6327 N. Pulaski St., Chicago, Ill., CA, $1,000,000, Alvernra HIGH SCHOOL for Girls and CONVENT, Ridge Ave. and Grade St., CHICAGO, ILL. Sisters of St. Francis, 3901 N. Ridge Ave., Chicago, Ill. Bids Jan. 24, awarded Jan. 27. CD 1/24.

▲ **Duffy Ave. Bldg. Corp.**, c/o Emil J. Minx, archt., 908 Pontiac Rd., Wilmette, Ill. Own Forces. $5,500,000. 400 HOMES, 8300 Dorchester Ave., CHICAGO, ILL.

United Constr. Co., 11812 Torrence Ave., Lansing, Ill., Own Forces, $550,000. 70 HOMES, DOLTON, ILL.

George A. Fuller Co., 111 W. Washington St., Chicago 2, Ill., CA, $750,000 SHOPPING CENTER, Lake St. and Skokie and Eden Hys., WILMETTE, ILL. Carson Pirie & Scott, 1 S. State St., Chicago 4, Ill. Awarded Jan. 25. CD 12/22.

▲ **A. J. Etkin Constr. Co.**, 10111 Capitol St., Oak Park, Mich. Owner Builds. $2,145,000. 163 HOUSES, south of Ten Mile Rd. and west of Church St., OAK PARK, MICH.

▲ **Helena Home Builders**, 21707 Love St., St. Clair Shores, Mich. CA Est. $1,700,000. 150 brick HOUSES, East 13 Mile Rd. and Harper Section, ST. CLAIR SHORES, MICH. Rose-Hill Realty Co., 14601 East Seven Mile Rd., Detroit, Mich.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Arkansas**—BA 2/15—U. S. Eng., P.O. Box 60, Vicksburg, Miss., Arkansas River Bank Stabilization Works, Lot I, pile dike constr., Item D-77.6-R, Brunson's Crossing Reach (Richland Bend), Jefferson Co., and Lot II, pile dike constr., Item D-24.0-R, Hopedale Cut-Off, Arkansas Co.

† **Ark., Blytheville**—HANGARS—BA 2/24—U. S. Eng., P.O. Box 867, Little Rock, rehabilitation of Hangars Nos. 1, 207 and 3, Blytheville Air Force Base, Serial ENG-03-050-55-83. Extended date. CD 1/25.

† **Neb., Omaha**—SPRINKLER SYS.—BA 3/1—Veterans Admin., Munitions Bldg., Wash. 25, D. C., install

automatic fire sprinkler sys. in a bldg. at Veterans Admin. Hospital.

† **Neb., Lincoln**—WEAPONS TRAINING BLDG.—BA On Or About 3/2—U. S. Eng., 1709 Jackson St., Omaha, Zone 2, Special Weapons Training Bldg., incl. (a) one 40x80x16 ft. masonry bldg., with slab on grade, and central steam heated air-conditioning and heating sys., (b) one 10x10 ft. masonry sentry house, (c) approx. 1,140 lin. ft. manproof chain-link fence, (d) flood lighting, (e) 6,500 sq. yd. 3 in. bit. pavement surf. with 8 in. of 80 C.B.R. base course, 22 in. of 20 C.B.R. subbase course, (f) steam line, sewer line, water line, fire hydrants, seeding, etc., Lincoln Air Force Base, ENG-25-066-55-68. Plans deposit $50. CD 8/5.

▲ **Mo., Kansas City** — AIRFRAME OVERALL STRUCTURE—BA 4/7—Trans World Airlines, 20 W. 9 St., Kansas City, Mo., airframe overall structure at Mid-Continent International Airport, $7,151,000. Plans deposit $250, Burns & McDonnell, 95 and Troost Sts., Kansas City, Mo., engrs. CD 11/12/53.

BIDS ASKED—BUILDINGS

▲ **Mo., Springfield**—SCHOOL—BA 3/9—Bd. Edc., 940 N. Jefferson St., Parkview High School, $1,750,000, R. P. Stahl, 530 S. National St., Springfield, archt. CD 10/13/53.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MISSOURI**—State Hy. Comm., Jefferson City,

Kansas City Bridge Co., 928 Broadway, Kansas City, Mo LB $2,020,400. Missouri River Bridge piers, St. Louis and St. Charles Counties. Bids Jan. 28. CD 12/21.

▲ **J. A. Tobin Constr. Co.**, 3700 Rainbow Blvd., Kansas City, Kan. LB $1,250,728, est. $1,283,228. concrete runway, 6,500 ft. long, 150 ft. wide, and taxiway 10,000 ft. long, 75 ft. wide, 12 in. thick, Mid-Continent International Airport, KANSAS CITY, MO. City, City Hall, Kansas City, Mo. Awarded Feb. 1. CD 8/6.

Sharp Bros. Constr. Co., 1014 E. 19 St., Kansas City, Mo. LB $599,226. engine test bldg at Mid-Continent International Airport, Contr. 4, near KANSAS CITY, MO. City, Dpt. Wks., City Hall, Kansas City, Mo. Bids Jan. 18. CD 1/6.

▲† **Abel-Dobson-Robinson**, a combination of **Abel Const. Co.**, 1815 "Y" St., and **Dobson & Robinson**, 823 1st. Natl. Bank Bldg., Lincoln, Neb. LB $1,198,868, parking apron and access taxiway, Lincoln Air Force Base, Inv. 25-066-55-49, LINCOLN, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Jan. 27. CD 1/11.

▲ **Melco, Inc.**, 1221 Baltimore St., Kansas City, Mo. CA $1,239,000. chemical bldg. at Florence Water plant, OMAHA, NEB. Metropolitan Utilities Dist., 18 and Harney Sts., Omaha, Neb. Bids Dec. 22. CD 12/29, under LB.

† **Natkin & Co.**, 4001 Leavenworth St., Omaha, Neb., LB $103,820, jet fuel facilities, Offutt Air Force Base, Inv. 25-066-55-8, OMAHA, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids Jan. 25. CD 1/4.

Southwestern Builders & Developers, Inc., 271 Kopman St., Houston, Tex. Own Forces. $75,000, asph. paved streets, concrete curb and gutter, near HOUSTON, TEX.

City, Irving, Tex. Force Account. $95,500, new c.i. water distr. mains, IRVING, TEX. Koch & Fowler, 3900 Lemmon St., Dallas, Tex., engrs. CD 6/17/53.

City, Irving, Tex. Force Account. $105,000, sanitary sewer collection lines, IRVING, TEX. CD 6/30/52.

City, Lubbock, Tex. Force Account. $85,000, addnl. WW sys. rehabilitation work, LUBBOCK, TEX. CD 12/18/52.

City, Lubbock, Tex. Force Account. $75,000, electric distr. lines, LUBBOCK, TEX. CD 12/29/52.

H. E. Newsom, Muleshoe, Tex., CA $119,000, irrigation proj., near MULESHOE, TEX. D. C. Livesay & Assoc., Lubbock, Tex. CD 1/12.

City, Pasadena, Tex. Own Forces. $100,000, street imprvs., repairing, surf., PASADENA, TEX. George S. Smith, city engr. CD 10/25.

City, Port Arthur, Tex. Own Forces. $110,000, special street imprvs. and asph. paving, PORT ARTHUR, TEX. George J. Schaumburg, 2678 Laurel St., Beaumont, Tex., engr. CD 12/16/53.

City, Waco, Tex. Own Forces. $125,000, addnl. sanitary sewerage sys. rehabilitation work, WACO TEX. D. Jones, Waco, Tex., city engr.

▲ **NEW MEXICO**—State Hy. Comn., Capitol Bldg., Santa Fe,

O. D. Cowart, Bridge Blvd. S. W., Albuquerque, N. M. CA $588,278, grading, drainage, misc. constr., major drainage structures of multiple opening concrete box culverts, 12.663 mi. State Rd. 460 from Anthony-North, FAP No. F-FI-001-1 (1), Dona Ana Co.;

E. M. Silver, 125 Tijeras Ave. N. E., Albuquerque, N.M., CA $192,916, grading, c. conc. pavement, curb and gutter, one 41 ft. span concrete, steel railroad underpass and misc constr. 0.413 mi. U. S. 85, City of Raton, FAP No. F-001-6-(3). Colfax Co.;

D. D. Skousen & Son, Springer Bldg., Albuquerque, N. M. CA $248,085, sub-base, base course, bit. surf., misc. constr., 19.157 mi. State Rd. 81 from Hachita North, FAP No. S-1103 (1), Grant Co.; CA $132,778. sub-base, base course, plant mix and misc. constr. 5.963 mi. State Rd. 58 between Springer and Cimarron, FAP No. S-1436 (2), Colfax Co.;

Wylie Bros. Constr. Co., 6511 Domingo Rd. N.E., Albuquerque, N. M., CA $305,945, base course, bit. surf. tr., misc. constr. 24.052 mi. Etate Rd. 256 from Jal Westerly, FAP No. S-1271 (1), Lea Co. Grand total $1,468,002. Bids Jan. 28. CD 1/18.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Parsons Constr. Co.**, 2512 Dee Park Blvd., Omaha, Neb. CA $1,200,000. MONASTERY, ELKHORN, NEB. Benedictine Fathers, Inc., Elkhorn, Neb. Steele, Sandham & Steele, Electric Bldg., Omaha, Neb., engrs. CD 11/24, under LB.

Tips Co., 701 Forest Ave. Rd., Dallas, Tex., CA $250,000. PLANT and WAREHOUSING, DALLAS, TEX. Hollywood-Maxwell Co., c/o Jacob E. Anderson, archt., Doggett Bldg., Dallas, Tex. CD 1/12.

Harmon & Mizell, Hy. 67, Duncanville, Tex. Owner Builds. $377,500, 60 low-priced DWELLINGS, Sect. 2 of West Park Estates, DUNCANVILLE, TEX. CD 1/12.

Harmon & Mizell, Hy. 67, Duncanville, Tex. Owner Builds. $415,000, 45 DWELLINGS, Sect. 1 of West Park Estates, DUNCANVILLE, TEX. CD 1/11.

Miles Strickland, Builder, 2502 Louisiana St., Houston, Tex. Owner Builds. $390,000. 40 DWELLINGS, GALENA PARK, TEX. CD 1/17.

Howard Housing Corp., 9104 Main St., Houston, Tex. Owner Builds. $377,500, 18 DWELLINGS, near HOUSTON, TEX. CD 1/17.

Houston-Hill, Inc., Box 1466, Midland, Tex., CA $624,587, two SCHOOLS, 20-room elementary in Permian Estates and 20-room elementary Barberdale School, Shandon and Barber Drives, MIDLAND, TEX. Midland Independent School Dist., Midland, Tex. Bids Jan. 20. CD 1/6.

Judson H. Phelps, Rte. 2, Box 208-L, San Antonio, Tex. CA $126,450. WAREHOUSE, SAN ANTONIO, TEX. White Investment Corp., 1509 Lamar St., San Antonio, Tex. CD 1/13.

▲ **C. H. Leavell & Co.**, 1900 Wyoming St., El Paso, Tex. CA $1,093,077, HIGHWAY DEPARTMENT BUILDING, Cerrillos Rd., SANTA FE, N. M. State Hy. Comn., Capitol Bldg., Santa Fe, N. M. Awarded Jan. 27.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **Wash., Spokane**—POWER BLDG.—BA 2/17—Dpt. Air Force, Purch & Contg. Officer, Geiger Air Force Base, emergency power bldg. for petroleum, oil and lubricants sys., Geiger Air Force Base. CD 1/4.

† **Wash., Yakima**—BA 2/21—U. S. Eng., 4735 E. Marginal Way, Seattle, Zone 4, access road addn., Yakima Training Center, ENG-45-108-55-124-B. CD 1/14/51, under Public Buildings.

California—BA 2/24—United Water Conservation Dist., of Ventura Co., 806 Railroad Ave., Santa Paula, distribution canal concrete pipe and struction, Unit 3, main supply line, lower river sys., between Saticoy

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spreading grounds along Ditch Rd. in vicinity of Saticoy and El Rio, Santa Paula. Plans deposit $5. CD 8/9/52.

† **Arizona—California-Nevada**—SUB-STATION—BA 3/8—Bureau Reclamation, Dpt. Interior, Phoeniz, Ariz., Bouse Sub-station, Parker-Davis, near Parker, Yuma Co., Ariz., Spec. DC 4315. CD 9/21/44, under Earthwork, etc.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

IDAHO—State Hy. Dpt., Boise,
Duffy Reid Constr. Co., Twin Falls, Idaho, CA, **$979,907,** roadway, plant mix surf., widen 30 ft. and 52.8 ft. concrete bridge 13.712 mi. State Hy. 15, Valley Co. Bids Jan. 11. CD 1/18, under LB.

† **Ben O. Davey Constr. Co.,** "A" St., Las Vegas, Nev., LB **$84,101,** addnl. storage facilities (Series TL, Phase 2), Ordnance Storage Area, ENG-04-353-55-74, NELLIS AIR FORCE BASE, NEV. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Jan. 14. CD 1/7.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento,
B & R Constr. Co., 110 Market St., San Francisco, Calif., LB **$259,488,** clearing, grubbing, grade roads, areas, water sys., sanitary sys., fuel gas sys., electric sys., drainage facilities buildings at Clear Creek 8.4 mi. S.W. of Happy Camp, Siskiyou Co. Bids Jan. 19. CD 1/4.

† **San Francisco Bridge Co.,** 140 Montgomery St., San Francisco, Calif., LB **$268,612,** enlarging existing turning basin, Deep Water Ship Channel, Stockton, ENG-04-167-55-37, CALIFORNIA U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Jan. 18. CD 1/7.

Manning & Whitaker, 1451 Fairfax Ave., San Francisco, Calif., LB, **$77,777,** imprv. power supply North Field area of San Francisco International Airport, SAN FRANCISCO, Calif. Public Utilities Comn., City Hall, San Francisco, Calif.

Clements Constr. Co., P.O. Box 667, Centerville, Calif., LB, **$98,900,** reconstr. portions various streets in S.W. Stockton area (outside city limits), STOCKTON, CALIF. San Jocquin Co., Court House, Stockton, Calif. Bids Jan. 24. CD 1/5.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Erickson Constr. Co.,** 1119 E. Bassettlaw Ave., Sacramento, Calif. CA, **$1,000,000,** design and construct SHOPPING CENTER, incl. 16 stores, Arden Way and Eastern Ave., SACRAMENTO, CALIF. Heck & Hurst, 9 and H Sts., Sacramento, Calif., and McMahon & Ford, 5653 Stockton Blvd., Sacramento, Calif.

▲ **Barrett Constr. Co.,** Evans Ave. and Rankin St., San Francisco, Calif., LB, **$1,861,029,** remodeling north wing of Ferry Bldg. for WORLD TRADE CENTER, SAN FRANCISCO, CALIF. State Harbor Comn., Ferry Bldg., San Francisco, Calif. CD 12/15.

▲ **MacDonald Eng. Co.,** 885 Bryant St., San Francisco, Calif., CA, **$1,200,000,** MILLS, WEST SACRAMENTO, CALIF. Farmers Rice Growers Co-operative, Russ Bldg., San Francisco, Calif. Awarded Jan. 15.

CANADA

BIDS ASKED—BUILDINGS

N. S., Halifax—SCHOOL—BA 2/22—Central Mortgage & Housing Corp., Montreal Rd., Ottawa, Ont., Stage III school exten., H. M. C. S. Shearwater $350,000. Plans deposit $100.

Ont., Barriefield—QUARTERS—BA 3/2—Defense Construction (1951) Ltd., 56 Lyon St., Ottawa, Ont., three non-commissioned officers quarters, each 2 story 35x146 ft., rein.-con., block, at Canadian Army Base, About $250,000.

▲ **B. C., Haney**—CORRECTIONAL INSTITUTE—BA 3/24—B. C. Govt., Douglas Bldg., Victoria, 2 story, rein.-con., main section correctional institute will house vocational training facilities, incl. hospital, administrative auditorium and recreational areas. $3,000,000. C. Campbell, Douglas Bldg., Victoria, archt. CD 12/15.

SOON LETS CONTRACT—HEAVY CONSTRUCTION

Que., Three Rivers—Canadian Pacific Ry. R. A. Emerson, ch. engr. Windsor Station, Montreal, Zone 3, bridge over C.P.R. tracks on Pont Lejeune. Over $200,000. R. E. Fanner c/o owner, engr.

SOON LETS CONTRACT—BUILDINGS

Ont., Toronto—WAREHOUSE—Midcontinent Trucks Terminal Ltd., 1608 Queensway, soon lets contract 2 story, 82x212 ft. steel, brick, precast concrete truck warehouse, $350,000. Wilson & Newton, 1104 Bay St., archts. S. Vozoris, 1 Westrose Ave., engr.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **BRITISH COLUMBIA**—B. C. Govt., Douglas Bldg., Victoria,
Marwell Constr. Co., Ltd., 1500 West Georgia St., Vancouver, B. C., CA, **$1,715,894,** Hy. Section 1, 5.99 mi. Horseshoe Bay-Squamish, first section of Squamish-West Vancouver upper levels hy. Bids Dec. 17. CD 1/4, under LB.

Canadian Comstock Ltd., 206 Laird Dr., Leaside, Toronto, Ont., CA, **$500,000.** cable house and cable laying for overseas communications, CLARENVILLE, NEWFOUNDLAND Canadian Overseas Telecommunications Corp., 211 St. Sacrement St., Montreal, Que. R. G. Griffiths, c/o owner, ch. engr. Awarded Jan. 22.

▲ **Pentagon Constr. Co. Ltd., & Iroquois Constr. Ltd.,** 1225 Bishop St., Montreal, Que., CA, **$6,470,000,** canal and lock at Iroquois, around Iroquois Dam at upstream end of the rapids, ONTARIO. St. Lawrence Seaway Auth., 1225 N. 2 Temporary Bldg., Ottawa, Ont. Bids Jan. 19. CD 12/3.

Kent County Council, County Bldgs., Chatham, Ont., Own Forces, **$700,000.** road work for 1955, CHATHAM, ONT. W. D. Colby County Bldgs., Chatham, Ont., co. engr. Awarded Jan. 25. CD 5/8/53.

Waterloo Council, County Bldg., Kitchener, Ont., Own Forces, **$580,000,** road constr., new bridges, maintenance, KITCHENER, ONT. J. M. Jordan, County Bldgs., Kitchener, Ont., co. engr. Awarded Jan. 25. CD 2/26/47.

▲ **Middlesex Co.,** County Bldg., London, Ont., Own Forces, **$1,000,000,** asph. paving, road constr., maintenance, new bridges and culverts, LONDON, ONT. F. D. Arnold, County Bldgs., London, Ont., co. engr. Awarded Jan. 25. CD 6/26.

BUILDINGS

LOW BIDS AND CONTRACTS

Bennett-Pratt Ltd., 5 Maple Leaf Dr., Weston, Ont., CA, **$558,658,** Gordon Graydon High SCHOOL, Ogden Ave., PORT CREDIT, ONT. South Peel Bd. Educ., Port Credit, Ont. Bids Dec. 16, awarded Jan. 27. CD 12/28, under LB.

▲ **Tope Constr. Co. Ltd.,** 701 Main St. W., Hamilton, Ont., LB, **$1,100,277,** 2 story, bsmnt., L-shaped FEDERAL GOVERNMENT BLDG., Church and Market Sts., ST. CATHERINES, ONT. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids Jan. 26. CD 12/3.

Carroll Contg. Co., Ltd., 4135 Dundas St. W., Toronto, Ont., CA approx. **$130,000.** FISH MARKET, Parliament St. near Fleet St., TORONTO, ONT., D. McIntyre & Co. Ltd., 64 Front St. E., Toronto, Ont. G. S. Adamson, 52 St. Clair Ave. E., Toronto, Ont., archt.

Angus Robertson Ltd., 5035 Western Ave., Montreal, Que., CA, **$500,000,** 1 story, 65,000 sq. ft., WAREHOUSE, OFFICES, incl. loading dock, Cote de Liesse Rd., MONTREAL, QUE. Massey-Harris-Ferguson Co. Ltd., 915 King St. West, Toronto, Ont. J. G. Elliot, c/o owner, staff archt. Awarded Jan. 26. CD 8/27.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

▲ † **Alaska, Galena**—AIR FORCE FACILITIES—BA 2/24—U. S. Eng., Anchorage, constructing bldgs., bulk fuel dispensing sys., roads and runway work. $5,000,000. CD 12/20.

† **Alaska**—OPEN-WIRE LINE—BA 2/28—Alaska Communications System, 4735 E. Marginal Way, Seattle 4, Wash. rehabilitate 98-mi. open-wire line from Skagway to McCrea, Inv. 55-12.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ † **Grove, Shepherd, Wilson & Kruge, Inc.,** 120 Sixth Ave. N., Seattle, Wash., CA $1,165,940; flight simulator bldg.; 500-man theatre and post exchange bldg.; armament and electronic shop, solvent storage; maintenance shop. Inv. 55-49, Ladd Air Force Base, ALASKA. U. S. Eng., Anchorage, Alaska. Bids Jan. 20. CD 1/26, under LB.

Proposed Projects

WATER SUPPLY

Mich., Saginaw and Midland—Saginaw-Midland Bd. Water Comrs., Saginaw, water supply pumping station, **$750,000;** suction reservoir 1 m.g., equip., piping, controls, **$100,000.** L. R. Howson, 20 N. Wacker Dr., Chicago, Ill., consult. engrs. CD 10/20/52.

SEWERS, WASTE DISPOSAL

▲ **Idaho, Twin Falls**—City, City Hall, extending city sewerage sys., constr. disposal plant, **$1,000,000.**

▲ **Mich., Detroit**—City, Dpt. P. Wks., City Hall, Incinerator program, incl. new Northwest incinerator with 3 furnaces, addnl. furnace, 5701 St. Jean Plant, experiment with king-size garbage grinders. **$2,000,000.** Theodore Winkler, waste disposal engr. CD

STREETS AND ROADS

Mich., Grand Rapids—PARKING RAMP—City, Fred J. Barr, mgr., Civic Auditorium, 227 Lyon St. N.W., parking ramp, **$800,000.**

▲ **WASHINGTON**—State Hy. Comn., Olympia,
King Co.—imprv. State Hy. 5, Renton to Auburn, East Valley Road 10.4 mi., **$95,200.**
resurf. existing pavement and widening 2.6 mi. Renton to Kent, **$109,200;**
resurf. and curbs, within Kent, 1.27 mi., **$124,800.**
grading, surf., paving 2.62 mi. State Hy. 2-A Renton to Kennydale, **$864,000;**
3.15 mi. Bagley Lane to Wilburton, **$156,000.**
3.55 mi. Kirkland north, **$763,000.**
2.63 mi. 132 St. to Woodinville, **$491,000.** W. A. Bugge, state hy. dir.

AIRPORTS

▲ **Tex., Beaumont**—AIRPORT IMPRVS.—Jefferson Co., Court House, airport imprvs., incl. drainage, paving, runway markings, lighting, grading, rerouting roads,

taxiway pavement, lengthening and straightening of runways, $1,078,336. W. O. Bower, co. engr. CD 2/4/48.

▲ Utah, Salt Lake City—RUNWAYS, etc.—Salt Lake City Comrs., City Hall, resurf. old runways and aprons, Municipal Airport. $1,000,000. CD 3/18/48.

▲† Wis., Madison—HOUSING UNITS—U. S. Eng., 428 Federal Bldg., Milwaukee, 100-unit housing units, Truax Field. $1,000,000. CD 6/27/51.

LATIN AMERICA

▲ Mexico, El Salto—HYDROELECTRIC PLANT—Comision Federal de Electricidad, Mexico City, plans 10,000 kwt. hydroelectric plant. $1,360,000.

Mexico, Mexico City—Junta Central de Conciliacion, Mexico City, plans headquarters bldg. $800,000.

PUBLIC BUILDINGS

▲ Ariz., Tucson—ART-DRAMA—University of Arizona, Tucson, plans by Place & Place, 9 N. Grossetta St., art-drama bldg. $1,422,000. CD 1/28/49.

▲ Ariz., Tucson—HOSPITAL—Pima Co., Court House, 300-bed county hospital. $5,000,000. Isadore & Zachery Rosenfield, 45 W. 45 St., New York, N. Y., consult. engrs.

Calif., Downey—SCHOOLS—Downey Elementary School Dist., Downey, $1,500,000 bond election May 22, schools.

▲ Calif., Milpitas—SCHOOLS—Miltipas School Dist., voted $1,000,000 bonds, schools. CD 11/10.

▲ Conn., Fairfield—SCHOOL—Town, High School Comn. C. J. McClinch, Sr., chn., Town Hall, plans by Lyons & Mathers, 211 State St., Bridgeport, 1 story, brick, steel, concrete high school eastern end of town, $1,000,000. Ernest D. Mortenson, 394 Hilltop Dr., Stratford, structural engr. Hill & Harrigan, 909 Whaley Ave., New Haven, mech. engrs. CD 4/7/53.

▲ Kan., Dodge City—SCHOOL—School Dist. 1, Ford Co., plans by Williamson & Loebsack, 1245 Topeka Blvd., Topeka, Junior High School, $1,000,000. CD 11/8.

▲† Me., Brunswick — HOUSING — P. Wks. Office, 495 Summer St., Boston, Mass., plans by Prentiss & Carlisle Co., Inc., 107 Court St., Bangor, Sect. II 111 housing units, Brunswick Gardens, $1,000,000.

▲ Mich., Lansing — POWER STATION — City, C. E. Eckert, Bd. Light Comrs., 116 W. Ottawa St., Moores Park Station, 100x144 ft., 100 ft. high addn., 3 new boilers, expanding steam heating facilities, $4,000,000. Burns & Roe, Inc., 233 Broadway, New York, N. Y., consult. engr. CD 11/12/51.

▲ Mich., Royal Oak—SCHOOL—City, Gladys Holmes, clk., $6,900,000 bond election Mar. 14, high school, high school addn., elementary schools. O'Dell, Hewlett & Luckenbach, 950 N. Hunter Blvd., Birmingham, archts. CD 12/16.

▲ Mich., Van Dyke—SCHOOL—Van Dyke School Dist. No. 5, Max Thompson, supt. Schools, 221 Federal St., voted $1,100,000 bonds, school program. CD 1/11.

▲ N. J., Saddle River—SCHOOL—Bd. Educ., Saddle River, Junior-Senior High School, $1,300,000.

▲ N. M., Albuquerque—DORMITORY—University of New Mexico, c/o Bd. Regents, Albuquerque, plans by Meem, Zehner, Hollen & Assocs., Box 628, Santa Fe, 2nd phase, new women's dormitory. $1,000,000.

▲ N. Y., Clarkstown—SCHOOL—Clarkstown School Dist., Clarkstown, plans by Coffin & Coffin, 125 E. 46 St., New York, Zone 17, three elementary schools. $1,000,000.

▲ N. Y., Warwick—HIGH SCHOOL—Bd. Educ., Warwick, plans by Coffin & Coffin, 125 E. 46 St., New York, Zone 17, Central High School. $1,500,000.

▲ Pa., Fallsington—HIGH SCHOOL—Falls Twp. School Auth., Fallsington, plans by Micklewright & Mountford, Fallsington, high school. $1,000,000.

▲ Pa., Spangler—HIGH SCHOOL—Joint School Dist. of Spangler, Spangler, plans by Hunter, Caldwell & Campbell, 5 Ave. and 36 St., Altoona, brick, steel Joint Senior-Junior High School. $2,500,000.

▲ Ont., Cornwall—SCHOOL—Cornwall Collegiate & Vocational School Bd., 46 Second St. W., plans by Sydney & C. S. Comber, 208 Pitt St., school, Sydney St. $1,160,000. CD 4/7/52.

COMMERCIAL BUILDINGS

▲ Ariz., Phoenix—HOTEL—W & J Development Co., c/o Matthew E. Trudell, archt., 914 W. Madison St., 200-room hotel, $1,200,000.

▲ Calif., Anaheim—HOTEL, etc.—Owner, c/o Pereira & Luckman, archts., 9220 Sunset Blvd., Los Angeles, hotel with swimming pool at Disneyland, $10,000,000.

▲ Fla., Miami Beach—HOTEL—Crosby Corp., Irving Kipnis, pres., 1610 Meridian Ave., plans by Melvin Grossman, 420 Lincoln Rd., Seville Hotel, 2901 Collins Ave. $8,000,000. Oboler & Clarke, 927 41 St., structural engrs. John Sasnett, 2701 Biscayne Blvd., Miami, mechanical engr. CD 5/7/51.

▲ Ill., Chicago—OFFICE and APARTMENT—Arthur Rubloff & Co., 100 W. Monroe St., Zone 3, 15 story, combination office and apartment, 1045 N. Dearborn St. $2,000,000.

▲ Ill., Wheeling—HOMES, etc.—E. A. Herzog Constr. Co., Algonquin Rd., Arlington Heights, 1,400 homes and a 40-acre shopping center. $150,000,000.

▲ N. J., Elizabeth—HOSPITAL—St. Elizabeth Hospital, 204 S. Broad St., plans by Eggers & Higgins, 100 E. 42 St., New York 17, N. Y., 7 story bldg., South Broad and Pearl Sts., new power house and existing buildings alterations, $5,000,000.

▲ N. Y., Forest Hills—APARTMENT—Boulevard Leading Corp., c/o George Miller, archt., 125 W. 45 St., New York, Zone 19, 6 story apartment, Queens Blvd., northeast corner of 64 Rd. $1,000,000.

▲ N. Y., New York—APARTMENT—1523-37 Second Ave. Corp., J. W. Schenker, pres., 16 W. 46 St., Zone 19, plans by Maxon, Sells & Ficke, 724 Fifth Ave., Zone 19, 18-story apartment, west side Second Ave. between 79 and 80 Sts. $1,500,000.

▲ N. Y., Richmond Hill—APARTMENT—Sam Lafrak, c/o George Miller, archt., 125 W. 45 St., New York, Zone 19, 6 story apartment, Austin St., east of Lefferts Blvd. $1,500,000.

▲ N. Y., Yonkers—APARTMENT—Chase Factors Corp., c/o Gad Bernstein, 73 Iverness Rd., 12 story apartment, Riverdale Ave., south of Valentine Lane at 523 Riverdale Ave. $3,000,000.

▲ O., Cleveland—OFFICE—University—Cedar Medical Center, Inc., 2828 Euclid Ave., Zone 15, 6 story 45,000 sq. ft. masonry office, 50 office units for doctors. $1,500,000. H. L. Vokes Co., 1000 Wayside Ave., Zone 19, consult. engr.

▲ Tex., Dallas—COUNTRY CLUB—Dallas Country Club, Beverly Dr., country club bldg. $1,000,000.

▲ Ont., Toronto—HOTEL—Principal Investments Ltd., 67 Richmond St. W., 6 story, 300-room hotel, Yonge St. opposite Yonge and Temperance Sts. $1,500,000.

▲ Ont., Toronto—DENTAL COLLEGE—University of Toronto, Simcoe Hall, plans by Allward & Gouinlock, 57 Bloor St. W., dental college on university campus. $1,000,000.

▲ Que., St. Hilaire—HOUSING—Jean Des Rosiers, 2081 Aylmer Ave., Montreal, plans by E. Bujold, 6904 Molson St., Montreal, 225 unit housing development. $2,700,000. CD 1/21.

INDUSTRIAL BUILDINGS

▲ Colo., Littleton—LABORATORY—The Ohio Oil Co. 539 S. Main St., Findlay, O., petroleum laboratory. $1,000,000.

▲ Ga., Atlanta—MILL, etc.—Atlantic Steel Co., 1365 Mecaslin St. N. W., mill $8,700,000; furnace, $750,000 administration bldg., $450,000.

▲ Miss., Meridian—PLANT—Kroehler Mfg. Co., Naperville, Ill., 120,000 sq. ft. furniture frame plant and lumber yard. $1,500,000-$2,000,000.

▲ N. Y., Buffalo—ELECTRIC GENERATING UNIT—Niagara Mohawk Power Co., 250 Park Ave., New York, Zone 17, 200,000 kw. steam electric generating unit. $30,000,000

▲ Tex., Port Arthur—PLANT, etc.—Gulf Oil Corp., Port Arthur, 300,000 lb. an hour type steam boiler plant, $1,250,000; gas treating unit to supply charge stock for ethylene production, $500,000; converting catalytic cracking units and convert to charge sweet crude, $650,000; water sys. $60,000; 105,000 g.p.m. water cooling tower, $475,000; earthwork, open drainage, grading in plant area, $50,000; plant area lighting, $75,000. CD 3/22/51.

▲ Tex., Port Arthur—SULPHUR PRODUCTION FACILITIES—Gulf Oil Corp., Port Arthur, facilities for sulphur production, $2,000,000. CD 3/22/51.

▲ Wash., Seattle—EQUIPMENT—Pacific Telephone & Telegraph Co., Third and Seneca Sts., Zone 1, 6 story, 111x130 ft. equipment bldg. $1,500,000.

▲ Wis., Madison—GENERATING PLANT—Madison Gas & Electric Co., 100 N. Fairchild St., electric generating plant addn. $9,000,000.

▲ B. C., Port Alberni—PULP MILL—MacMillan & Bloedel Ltd., Port Alberni, enlarging existing pulp mill, constr. 2 new mills. $30,000,000. H. A. Simons & Assocs., 16 E. Hastings St., Vancouver, consult. engrs.

▲ Que., Valleyfield—FACTORY—Davison Chemical Co. Ltd., W. R. Grace & Co., Davison Chemical Bldg., Baltimore, Md., U. S. A., factory, on 30-acre site. $6,000,000. Badger Div., Stone & Webster Eng. Corp. 49 Federal St., Boston, Mass., U. S. A., consult. engrs.

UNCLASSIFIED

▲ Okla., Cushing—ELECTRIC LIGHT SYS.—City, voted bonds Jan. 18, electric light sys. expansion, $1,400,000. C. H. Guernsey & Co., 2701 N. Oklahoma St., Oklahoma City, consult. engrs. CD 12/22.

▲† Vt., North Concord — FACILITIES — BA On Or About 4/15—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., facilities, ENG-19-016-55-5. $1,000,000-$1,500,000. Webster-Martin, Inc., Municipal Airport, South Burlington, archt. CD 10/27.

▲ Wash., Seattle—GAS MAINS—Seattle Gas Co., 1507 4 Ave., Zone 1, 12 and 16 in. mains from Jackson St. to Georgetown with transmission mains from Georgetown to South Seattle city gate and transmission main from North Seattle city gate to Lake Union $1,200,000. CD 6/25.

▲ Wis., Milwaukee—PARKS, etc.—Milwaukee Co., Court Houst, various park imprvs., $800,000; swimming pools in various locations, $350,000; small boat marina, $250,000; zoo construction, $4,500,000. E. A. Howard, county engr. CD 9/14.

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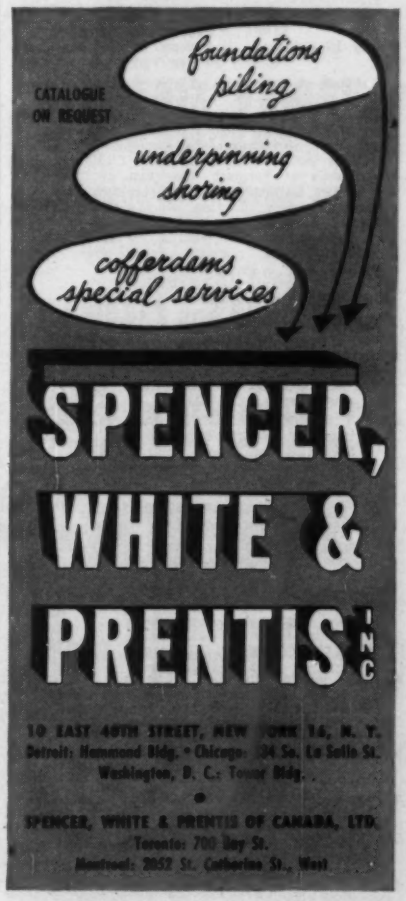
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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 17 Massachusetts
STREETS AND ROADS
February 15 Massachusetts February 24 New Hampshire

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Massachusetts Turnpike Auth., 80 Boylston St., Boston,
Clark Farrell Rogers Co., 410 Cotton Exchange, Memphis, Tenn. LB **$3,969,258.** Contr. No. 51-071 hy. and bridge constr. at Sturbridge and Charlton. Bids Feb. 1. CD 1/4.

▲ **CONNECTICUT**—State Hy. Dpt., State Office Bldg., Hartford
Mariani Constr. Co., 222 Forbes Ave., New Haven, Conn., LB **$1,359,223**, Proj. 316-02, bridges, grading, drainage, Greenwich-Killingly Expressway, West Haven. Bids Jan. 24. CD 1/4.

▲ **CONNECTICUT**—State Hy. Dpt., State Office Bldg., Hartford,
Construction Aggregates Corp., 33 North La Salle St., Chicago, Ill., LB **$1,644,520**, Proj. 215-05, 4,200,000 cu. yd. hydraulic borrow from dredging in Bridgeport Harbor stockpiling same in contiguous areas, Greenwich-Killingly Expressway, Bridgeport and Stratford. Bids Jan. 24. CD 1/25.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **George A. Fuller Co.**, 11 Beacon St., Boston, Mass. CA Approx. **$1,000,000.** MANUFACTURING and OFFICE, Nahatan St. and Providence Hy., NORWOOD, MASS. Mason-Neilson Regulator Co., 1190 Adams St., Dorchester, Mass. Bids Jan. 14. CD 12/28.

▲ **Blitman Constr. Corp.**, 101 Park Ave., New York, N. Y. CA Approx. **$2,000,000.** 9 story, bsmnt., brick, rein.-con. APARTMENT HOUSE, Bedford St., STAMFORD, CONN. Bedford Towers Corp., c/o Philip Birnbaum, archt., 12 E. 48 St., New York, N. Y. CD 7/12.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 15 Maryland February 17, 24 New Jersey
February 24 New York

▲ **Maryland**—TUNNEL—BA 3/10—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 3, Patapsco Tunnel Proj. Contr. P. T. 108 river tunnel and shafts in Baltimore City, tunnel extends from point on south shore of Patapsco River, approx. 0.2 mi. east of Childs St. in Fairfield, Baltimore City to point on north shore of Patapsco River east of Clinton St. in Canton, Baltimore City; river tunnel is a subaqueous, two-tube four-lane vehicular tunnel crossing Patapsco River between ventilation shafts in Canton and Fairfield, approx. 6,300 ft., 2 steel, rein-con. ventilation shafts, roadway paving. Plans deposit $40; adv. ENR 2/10. CD 6/4.

BIDS ASKED—BUILDINGS

▲ **Pa., Phila.**—SANITARIUM—BA 2/23—General State Auth., 18 and Herr Sts., Harrisburg, Philadelphia Tuberculosis Sanitarium alterations, and alterations from present hospital bldgs. and constr. hospital bldg. $7,900,000. Engineering Consultants, 843 N. 19th St., consult. engrs. CD 4/16.

▲ **N. Y., Brooklyn**—HOUSING—BA 2/24—New York City Housing Auth., 299 Broadway, New York, Zone 7, (1) foundation and general construction (2) heating and ventilating (3) electrical work and (4) plumbing for Marlboro Houses (Proj. No. NYS-6-2), in area bounded generally by W. 11 St., Ave. W., Stillwell Ave., Ave. V., 86 St., W. 8 St. and Avenue X. Total $22,445,000. Plans deposit $25. CD 4/28.

Pa., Waymart—BOILER PLANT, etc.—BA 3/2—General State Auth., 18 and Herr Sts., Harrisburg, boiler plant, and dual primary electric service and distr. at Fairview State Hospital, $680,000. Plans deposit $10. Albert E. Peters Assocs., 216 N. 9th Ave., Scanton, Zone 4, engrs. CD 3/25.

SOON LETS CONTRACT—BUILDINGS

▲ **N. Y., Bayside**—HOME—Ozanam Hall, Inc., 202 St. and 43 Ave., soon lets contract home for the aged, 43 Ave. and 201 St. $2,500,000. Beatty & Berlenback, 32 Court St., Brooklyn, Zone 2, archts. CD 10/22.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **General Electric Co.**, River Rd, Schenectady, N. Y., CA, **$13,210,721**, 16 generators in United States half of Barnhart Island Powerhouse on St. Lawrence Power Proj., NEW YORK. Power Authority of the State of New York, 270 Broadway 7, N. Y CD 8/18.

▲ **Charles F. Vachris, Inc.**, 9024 Ditmas Ave., Brooklyn 36, N. Y., LB **$1,295,965**, combined relief sewer and recurbing, reflagging, sheet asph. on 6 in. concrete paving (permanent pavement) 50 St. from 17 to 12 Aves., BROOKLYN, N. Y. President Brooklyn Boro, Boro Hall, Brooklyn 1, N. Y. Bids Jan. 27. CD 1/18.

▲ **Hendrickson Bros., Inc.**, 63 N. Central Ave., Valley Stream, N. Y. CA **$3,128,082.** third lateral sewer constr. proj. will require installation approx. 42 mi. lateral sewer pipe 16 mi. house connections, in Valley Stream, MINEOLA, N. Y. Bd. Supervs. Nassau Co., Old County Court House, Mineola, N. Y. CD 1/18, under LB.

NEW JERSEY—New Jersey Turnpike Auth., Administration Bldg., New Brunswick.
Klevens Corp., 3 Federal St., Yonkers, N. Y., CA, **$828,842**, Contract N-19, 19 piers for substructure of Bayview Viaduct from Caven Pt. Rd. to Bayview Ave. in connection with Newark Bay-Hudson County Exten. of N. J. Turnpike, Jersey City, Hudson Co. Bids Jan. 25, awarded Feb. 1. CD 1/28, under LB.

NEW JERSEY—New Jersey Turnpike Auth., Administration Bldg., New Brunswick
Cayuga Foundation Corp., 30 Vesey St., New York, N. Y. LB, **$665,805**, Contract N-26B, 23 piers for North Terminal Ramps (Section B) on Newark Bay-Hudson County Extension of N. J. Turnpike, Jersey City, Hudson Co. Bids Feb. 1. CD 1/13.

▲ **NEW JERSEY**—New Jersey Turnpike Auth., Administration Bldg., New Brunswick,
Horn Constr. Co., 2174 Hewlett Ave., Merrick, L. I., N. Y. CA, **$1,942,850**, Contract N-26a, 25 piers for substructure of North Terminal Ramps (Section A) from Second St. to Ninth St. in connection with Newark Bay-Hudson County Extension of N. J. Turnpike, Jersey City, Hudson Co. Bids Jan. 18, awarded Feb. 1. CD 1/21, under LB.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. Fourth St., Harrisburg,
J. Robert Bazley, Inc., Pottsville, Pa., LB, **$2,375,066** Turnpike Sect. 37-A, structures, grading, draining, paving, Northeastern Exten. of Pennsylvania Turnpike, Penn Forest Twp, Carbon Co. Bids Feb. 1. CD 1/6.
Conduit & Foundation Corp., 152 N. 20 St., Phila., Pa. CA **$724,000**, est. $1,032,619. general contract Northeast Incinerator addns., alterations, PHILA., PA. Dpt. Procurement, City Hall Annex, Phila., Pa. Bids Oct. 21. CD 11/5, under LB.

MARYLAND—State Rds. Comn., 108 E. Lexington St., Baltimore, Zone 2,
Allied Contractors, Inc., 204 E. Preston St., Baltimore 2, Md. LB **$578,541.** 6 span dual WF steel beam bridge to carry relocated river Rd. State Rte. 201 over Magruder Branch of P.R.R. at Kenilworth, Contr. P 724-14-320, Prince George's Co. Bids Feb. 1. CD 1/7.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bruce Park Homes**, c/o Bonded Realty Corp., Sunrise Hy., Lindenhurst, N. Y. Owner Builds. **$1,000,000.** 100 HOUSES, tract on Sunrise Hy. and Schubert Ave., LINDENHURST, N. Y.

▲ **F. D. Rich Co. Inc.**, 322 Main St., Stamford, Conn., CA, **$2,542,000.** INFIRMARY BLDGS., KITCHEN, etc., Bldgs. 73, 74, 75, Rome State School, ROME, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Dec. 16 awarded Jan. 27. CD 12/20, under LB.

J. M. Young & Sons, Belleville, Pa., LB **$730,000.** HIGH SCHOOL, BELLEFONTE, PA. Bellefonte Area Joint Schools, Bellefonte, Pa. Bids Jan. 25. CD 12/29.

B. Bornstein & Son, 2027 Arch St., Phila., Pa. LB **$647,600.** West Glenside Elementary SCHOOL, GLENSIDE, PA. Cheltenham Twp. School Dist. Auth., Elkins Park, Pa., Bids Jan. 27. CD 1/6.

▲ **Lewis Chessman**, 1247 Dill St., Havertown, Pa. Separate Contracts **$1,173,000.** RESIDENTIAL DEVELOPMENT, Roxborough Sect., PHILA., PA. Matthew B. Ehrlich, 1 N. 13 St., Phila., Pa., archt.
Millison Constr. Co., 217 W. Monument St., Baltimore 1, Md. LB **$740,000**, est. $650,000. 1 story, 200 x 300 ft. masonry Woodmoor Elementary SCHOOL, Lansdowne, TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Townson, Md. Bids Jan. 26. CD 1/17.
▲ **Burns & Roe, Inc.**, 233 Broadway, New York 7, N. Y. **J. Rich Steers Inc.**, 17 Battery Pl., New York 4, N. Y., and **Hatzel & Buehler, Inc.**, 420 Lexington Ave., New York 17, N. Y., CA, NUCLEAR POWER PLANT at Shippingport near PITTSBURGH, PA. Duquesne Light Co., 435 Sixth Ave., Pittsburgh 6, Pa. CD 6/7, under CA.
† **Guy Miller**, 1618 Robinson Blvd., Pittock, Pa. CA **$520,937.** E. M. BARRACKS and OFFICERS' QUARTERS, in launching area of Special AAAA sites PI-02-C1, PI-25-CL, PI-42-CL, PI-52-CL, PI-162-CL, PI-71-CL, ENG. 18-020-55-25, MARYLAND and PENNSYLVANIA. U. S. Eng., P.O. Box 1715, Baltimore 3, Md. CD 12/30, under LB.
▲ **Joseph F. Hughes & Co.**, 5 E. Franklin St., Baltimore, Md. LB **$2,283,187.** Southern High SCHOOL, BALTIMORE, MD. City, Bureau Bldg. Constr., 410 Municipal Bldg., Baltimore 2, Md. Bids Feb. 2. CD 1/20.
▲ **Blake Constr. Co.**, 33 E. St. S.W., Wash. D. C., CA **$1,978,000.** Woodson Junior High SCHOOL, Minnesota Ave., near Grant St. N.E., WASH., D. C. D. C. Govt., 499 Pa. Ave. N.W., Wash. D. C. Bids Jan. 25. CD 1/27.
▲ **Colonial Mortgage Co.**, 923 15 St. N.W., Wash. D. C., Owner Builds, **$7,000,000.** 371-unit APARTMENT DEVELOPMENT on Glover Tract, Ward Circle, N.W. WASH. D. C. Corning & Moore, 1726 M. St. N.W., Wash., D. C., archts.
Cordy & Son, Inc., New Castle, Del., Separate Contracts, **$950,000.** RESIDENTIAL DEVELOPMENT, Brookmont, BEAR, DEL.
▲ **Ambe Constr. Co.**, Box 840, New Castle, Del., Separate Contracts **$1,000,000.** RESIDENTIAL DEVELOPMENT, Castle Hills, NEW CASTLE, DEL.
▲ **Cordy & Son, Inc.**, New Castle, Del., Separate Contracts, **$1,500,000**, RESIDENTIAL DEVELOPMENT, Stanton Village, STANTON, DEL.
▲ **Castle Constr. Co.**, 7 St. and Greenhill Ave., Wilmington, Del., Separate Contracts, **$3,000,000**, RESIDENTIAL DEVELOPMENT, Swanwyck Section, Landers Lane, etc., WILMINGTON, DEL.
▲ **S. & S. Builders**, Box 391, Wilmington, Del., Separate Contracts, **$3,000,000.** RESIDENTIAL DEVELOPMENT, Oak Hill Development, Faulkland Rd., WILMINGTON, DEL.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 16 Louisiana, Virginia February 18 Kentucky
STREETS AND ROADS
February 16 Louisiana, Virginia February 18 Kentucky

▲† **La.**, Shreveport—AIRFIELD PAVING—BA 2/24—U. S. Eng., P.O. Box 867, Little Rock, Ark., airfield paving and foundation equip. shelter, Schedule A rigid paving, Schedule B heavy duty strength rigid overlay paving, Barksdale Air Force Base, ENG-30-050-55-85. $3,000,000-$5,000,000. CD 2/1.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **GEORGIA**—State Hy. Dpt., Atlanta,
M. J. Carroll Contg. Co., Leesburg, Fla., CA, **$574,496** bridge at Echeconnee Creek and 4.646 mi. paved approaches on Perry-Macon Rd., Houston and Bibb Counties. Awarded Jan. 10;
Scott Constr. Co., Thomasville, Ga., CA, **$668,849** bridge over Chattahoochee River between Donaldsonville and Marianna, Seminole Co. Awarded Jan. 6. CD 12/27, under LB.
▲† **Wright Contg. Co.**, P. O. Box 1580, Columbus, Ga., CA, **$3,239,223**, airfield paving, misc. facilities, Turner Air Force Base, ENG-09-133-55-29, ALBANY GA U. S. Eng., 200 E. St. Julian St., Savannah, Ga. Bids Jan. 13. CD 12/27.

FLORIDA—State Road Dpt., Tallahassee,
Bay Dredging & Constr. Co., Box 1484, Tampa, Fla., CA, **$869,795**, Cortez Bridges and approaches between Mainland near Cortez and Anna Maria Island, State Road 684, Job 1304-175, Manatee Co. Bids Nov. 30, awarded Jan 31. CD 12/3, under LB.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,
W. R. Aldrich & Co., Box 1751, Baton Rouge, La. LB **$1,140,324.** c. conc. 11.106 mi. Alexandria-Pollock Hy., State Rte. 14, S.P. 15-02-09, 15-03-13 and 15-04-14, F.A. Proj. F 384 (2) and F 111 (9), Rapides and Grant Parishes;
W. R. Core, Glenmora, La. LB **$92,436.** bit. surf. tr. 3.73 mi. Bogalusa-Sheridan Hy., State Rte. 1548, S.P. 859-22-06, Washington Parish;
Central Constr. Co., Inc., Monroe, La. LB **$128,997**, bit. surf. tr. 4.605 mi. Rayville-Northeast Hy., State Rte. 2085, S.P. 842-16-04, Richland Parish;
Hall & Holland, Montgomery, La. LB **$161,150.** bit. surf. tr. 5.983 mi. Winnsboro-St. Joseph Hy., State Rte. 48, S.P. 36-04-18, F.A. Secondary Proj. S 180 (5), Franklin Parish;
Lafayette Materials, Inc., Box 4525 Audubon St., Baton Rouge, La. LB **$99,428.** bit. surf. tr. 4.544 mi. Cooper Lake Rd. and Shelton Rd. Hys., State Rte. 2154 and 2229, S.P. 834-13-04 and 834-14-02, Morehouse Parish;
LeBlanc Bros., 702 Louisiana National Bank Bldg., Baton Rouge, La. LB **$108,751.** bit. surf. tr. 5.9 mi. Thibodaux-Labadieville Hy., State Rte. 77, S.P. 407-05-05, Lafourche Parish;
J. B. Talley & Co., St. Martinville, La. LB **$89,824.** c. conc. 0.968 mi. Lafayette (O.K. Street and Pinhook Rd.), State Rte. 2 and 1092, S.P. 4-31-05, Lafayette Parish;
R. B. Tyler Co., 1446 Levering St., New Orleans, La. LB **$169,117.** bit. surf. tr. 4.69 mi. Pointe-a-la Hache-Bohemia Hy., State Rte. 1, S.P. 46-07-05, Plaquemines Parish;
Walden & Williams, Box 738, Mansfield, La. B **$127,-878.** bit. surf. tr. 8.57 mi. Tannehill-Wyatt and Brewsters Mill-Dodson Hys., State Rte. 231, 547 and 328, Winn and Jackson Parishes. Bids Jan. 26. CD 1/12.

▲ **LOUISIANA**—Mississippi River Bridge Auth., 422 City Hall Annex,
Dravo Corp., Neville Island, Pittsburgh 25, Pa., CA **$6,691,590** est. $12,000,000. Contr. No. 3 constr. substructure of river crossing for Greater New Orleans Bridge over Mississippi River, New Orleans. CD 1/27, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Stratford Building Co.**, c/o Ryder, Struppmann & Neumann, archts., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$4,000,000.** 200 brick HOMES, 78-acre tract, Fort Hunt Rd. and Mt. Vernon Blvd.,

to be known as "Stratford-on-the-Potomac", ALEXANDRIA, VA.

▲ **English Constr. Co.**, Main St., Alta Vista, Va., LB $1,113,017. two HIGH SCHOOLS one Rte. No. 29, other Rte. No. 60, near AMHERST, VA., Amherst County School Bd., Tyler Fulcher, supt., Amherst, Va. Bids Jan. 29. CD 1/18.

▲ **Republic Constr. Co.**, Beverly Hills, Calif. (Mr. Jesse Larson, Sheridan-Park Hotel, Wash. D. C.). Owner Builds. $12,750,000. 850 HOME sub-division on 270-acres, Shirley Hy. and Franconia Rd., FAIRFAX, Va.

George J. Glover Co., 1430 Whitney Bldg., New Orleans, La., CA $554,702. brick, cast stone steel frame CHURCH, WESTWEGO, LA. Our Lady of Prompt Succor, Ave. A, and Fourth St., Westwego, La. Awarded Jan. 24. CD 12/8, under LB.

MIDDLE WEST

BIDS ASKED—BUILDINGS

▲ **Ind., Brazil**—BA 2/15—Bd. P. Wks., City Hall, Brazil, WW, $1,200,000. J. B. Wilson, K of P Bldg., Indianapolis, engr. CD 9/24/56.

▲ **Mich., Ann Arbor**—REACTOR—BA 2/15—Regent of University of Michigan, W. K. Pierpont, vice pres., 200 Plant Service Bldg., North University and Forest Ave., reactor bldg., incl. overhead crane and laboratory furniture, North Campus, $1,000,000, Plans deposit $50 refundable, Smith-Hinchman & Grylls, 800 Marquette Bldg., Detroit, archts.; Proj. No. 65-A, fabrication and installation in nuclear reactor bldg., north campus, Plans deposit $200 refundable, Atomic Energy Div., Babcock & Wilcox Co., 330 S. Main St., Akron, O., engrs. CD 4/7.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Rock Road Constr. Co.**, 5915 N. Rogers Ave., Chicago 26, Ill., LB, $1,319,602, runway, taxiway O'Hare Field International Airport, CHICAGO, ILL. City, City Hall, Chicago, Ill. Bids Jan. 28. CD 1/9.

BUILDINGS

LOW BIDS AND CONTRACTS

Joseph Skilken & Co., 44 E. Broad St., Columbus, O., LB $867,293, 200x400 ft. FIELD HOUSE, west side St. John Sports Arena, COLUMBUS, O. Ohio State University, N. High St., Columbus, O. Bids Jan. 18. CD 12/20.

Wm. E. Schweitzer, 2207 Dodge Ave., Evanston, Ill., LB, $525,000, OFFICE, Skokie Hy. at Washington St., SKOKIE, ILL. Pacific National Fire Insurance Co., 460 Montgomery St., San Francisco, Calif. Bids Jan. 25. CD 1/25.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES

February 16 Colorado February 17 Kansas
February 18 Minnesota

STREETS AND ROADS

February 17 Kansas February 18 Minnesota

▲† **Tex., Sherman**—OPERATIONS and READINESS FACILITIES—BA 2/23—U. S. Eng., P.O. Box 61, Tulsa 2, Okla. operations and readiness facilities, Perrin Air Force Base, Inv. ENG-34-066-55-45. $1,000,000. CD 1/11.

▲ **Texas**—TERMINAL PLANT, etc.—Bids Asked—Shamrock Oil & Gas Corp., J. H. Dunn, pres., 1st Natl. Bank Bldg., Amarillo, terminal plant, Hale City, vicinity Abernathy, $200,000; 175,000 bbl. crude storage, Hale City, vicinity Abernathy, $125,000; 100 mi 6 in. crude oil line in area Hale City, $775,000. CD 12/30.

BIDS ASKED—BUILDINGS

Tex., Houston—SHOPPING CENTER—BA 2/18—Center, Inc., c/o J. C. Epps, Jr., 12157 Kathryn Ct., 3 one story bldgs., 85,000 sq. ft., hollow tile, masonry shopping center. $850,000. Arne G. Engberg, 2130 Welch St., archt. Walter P. Moore, 2 Pinedale St., and B. Johnson & Assocs., 4926 Travis St., engrs.

▲ **Mo., St. Louis**—DORMITORY—BA About 3/1—St. Louis University, Very Rev. Paul C. Reinert, pres., 221 N. Grand Blvd., Zone 3, 8 story, bsmnt., brick, rein.-con. women's dormitory,3811-15 West Pine Blvd., $1,025,000. Leo A. Daly Co., 411 N. 7 St., St. Louis, Zone 1, archt. CD 6/15/54.

▲† **Tex., Houston** — HOSPITAL — BA 3/1 — Veterans Admin., Munitions Bldg., Wash. 25, D. C., Veterans Admin. Hospital Bldgs. and utilities, alterations, addns., Proj. 42-5281 and 42-5283. $3,500,000. Extended date. CD 1/6.

▲ **Colo., Denver**—HOTEL—Bids Asked—Leon DuCharme, Denver Club Bldg., 250-room luxury hotel, 9-acre site, in southeastern section of city. $2,500,000. J. N. MacCammon, 5646 Milton St., Meadows Bldg., Dallas, Tex., archt.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MISSOURI**—State Hy. Dpt., Jefferson City,
W. J. Menefee Constr. Co., Sedalia, Mo. LB $1,185,209. 24 ft. c. conc. 10.787 mi. Franklin Co.; LB $1,020,958. c. conc. 10.63 mi. Webster Co.; LB $361,996. c. conc. 3.844 mi. Laclede Co.; b. conc. on stabilized aggregate paving 5.119 mi. Howell Co.;
Forcum-James Co., Dyersburg, Tenn. LB $758,872. c. conc. 8.423 mi. Wayne Co.; LB $87,678. stabilized aggregate base double seal coat 1.045 mi. Wayne Co.;
Trinidad Asphalt Mfg. Co., Quarry Realty Co., 4030 Chouto Dr., St. Louis, Mo. LB $509,833. wid'n., b. conc. 14.943 mi. Bates Co.;
Atkinson Windle Co., Chillicothe, Mo. LB $88,397. c. conc. 0.835 mi. Scott Co.;
Koss Constr. Co., 570 Iowa Des Moines Bank Bldg., Des Moines, Ia. LB $1,032,928. c. conc. 9.024 mi. St. Charles Co.;
M. E. Gilliozz, Monett, Mo. LB $83,052. grav. or crushed stone surf. 12.207 mi. Howell Co.; LB $646,827. c. conc. 6.491 mi. Texas Co.;
Union Constr. Co., 1401 Fairfax Trafficway, Kansas City, Kan. LB $217,229. grading 4.755 mi. Livingston Co.;
R. R. Stephens & Co., C. R. Rich & Co., Elsberry, Mo. LB $78,899. graded earth, surf. 5.484 mi. Madison Co.;
Frank Trager Contr., Chillicothe, Mo. LB $265,568. b. conc. on stabilized aggregate paving 4.567 mi. Oregon Co. Bids Jan. 28. CD 1/12.

▲ **NEBRASKA**—State Dpt. Road & Irrigation, Lincoln,
W. A. Lynn Constr. Co., 1022 Trust Bldg., and **Roberts Constr. Co.**, 1018 Trust Bldg., Lincoln, Neb., CA, $1,341,985, grading, paving, viaduct FA-FG-1 "O" St., Lincoln, Lancaster Co. Bids Dec. 16, awarded Dec. 22. CD 12/22, under LB.

▲ **KANSAS**—Kansas Turnpike Auth., c/o County Clerk, Emporia,
S. J. Groves & Sons Co., 500 Wesley Temple Bldg., Minneapolis, Minn. CA $1,464,605. combined Projs. 15E and 16E grading, drainage, Butler and Chase Counties. CD 1/13, under LB.

KANSAS—State Hy. Comn., Belleville,
Koss Constr. Co., Pauline, Kan. CA $760,465. c. conc. 10.254 mi. Proj. 81-79 F 043-2 (7), Republic Co. Bids Jan. 18. CD 1/3.

Burnett Constr. Co., Box 336, Corpus Christi, Tex. CA $974,150. modification Broadway Sewage Treatment Plant, CORPUS CHRISTI, TEX. City, City Hall, Corpus Christi, Tex. CD 1/19, under LB.

Pioneer Natural Gas Co., c/o C. I. Wall, 1003 Texas Ave., Lubbock, Tex. Own Forces, Purchases. $450,000. expansion of gas transmission lines; $500,000, expansion of natural gas distr. lines, PANHANDLE, TEX. CD 8/11/54.

NEW MEXICO—State Hy. Comn., Capitol Bldg., Santa Fe,
Henry Thygesen & Co., 424 Kinley Ave. N. E., Albuquerque, N. M., CA $716,352, ballast, leveling course, hot plant surf., curb and gutter, one 3-span concrete, steel railroad overpass 192.52 ft. long, widening one concrete, steel bridge and misc. constr. 5.876 mi. US 54-70 from junction US 54 and US 70 north through Alamogordo to junction U.S. 54-70 and St. Rd. 83, FAP No. F-020-1, U-020-1 (2) and SP F-020-1 (400), Otero Co. Bids Dec. 17. CD 12/23, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Wahl Constr. Co., St. Cloud, Minn. CA Est. $800,000. general contract MONASTERY, COLLEGEVILLE, MINN. St. John's Abbey, Collegeville, Minn. M. Breuer, 113 E. 37 St., New York, N. Y., archt. Traynor & Hermanson, St. Cloud, Minn., superv. archt. at site. CD 4/30.

▲ **Lovering Constr. Co.**, 59 W. Kellogg Blvd., St. Paul, Minn., and J. S. Sweitzer & Son, 739 Pillsbury St., St. Paul, Minn. LB $1,469,000. (jointly) general contract 9 story, 125x133 ft. addn. to St. Mary's HOSPITAL group, DULUTH, MINN. Sisters of St. Benedict, St. Mary's Hospital Group, 429 E. Third St., Duluth, Minn. Bids Jan. 26. CD 1/19.

▲ **D'Arcy Leck Constr. Co.**, 2938 Stevens Ave., Minneapolis, Minn. CA $1,991,390. general contract 1 and 3 story HIGH SCHOOL, swimming pool, St. LOUIS PARK, MINN. Bd. Educ., H. R. Enesvedt, supt., St. Louis Park, Minn. Bids Jan. 26. CD 12/9.

▲ **C. D. Reyner & L. J. Leek Dev. Co.**, 6110 Johnson Dr., Mission, Kan. Separate Contracts. $1,700,000. 128 RESIDENCES, 115 and State Line, KANSAS CITY, MO. Ellsworth Smith & Carlson, 6110 Johnson Dr., Mission, Kan., archts.

Cowan Constr. Co., Shawnee, Okla., LB $726,700. masonic grand LODGE bldg., GUTHRIE, OKLA. Masonic Grand Lodge, Guthrie, Okla. Dow Dummerson, Enid, Okla., archt. CD 2/23/53.

▲ **Carpenter Brothers**, 1335 Plowman St., Dallas, Tex. CA $1,100,000. WAREHOUSE and OFFICE, DALLAS, TEX. Associated Wholesale Grocery of Dallas, Inc., Ambassador Row and Profit Dr., Dallas, Tex. Bids Jan. 21. CD 1/18.

Robert E. McKee, General Contractor, Inc., Box 2848, Dallas, Tex., LB $861,000, est. $875,000. 3 story, bsmnt. OFFICE, DALLAS, TEX. Republic National Life Insurance Co., Central Expressway and Carroll St., Dallas, Tex. Bids Jan. 21. CD 12/22.

Quisle Constr. Co., T & P Bldg., Fort Worth, Tex., LB $629,629. general constr., ADMINISTRATION BLDG., PHYSICAL EDUCATION BLDG., LIBRARY and SCIENCE BLDG., CLASSROOM BLDG., DENTON, TEX. Texas State College for Women, Denton, Tex. Bids Jan. 28. CD 12/30.

Miles Strickland, 12038 Coulson Circle, Houston, Tex. Owner Builds. $713,950, 71 DWELLINGS, HOUSTON, TEX. CD 12/21.

Jack R. Little, 1202 Ogilvie St., Houston, Tex., CA $733,905, Group 1, 21 DWELLINGS; Group 2, 28 DWELLINGS, HOUSTON, TEX. G. M. DeGeorge & Assocs., Melrose Bldg., Houston, Tex. CD 12/22.

Walter W. Mischer & Assocs., 6925 Navigation Blvd.,

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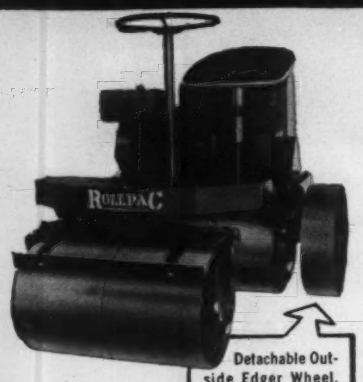

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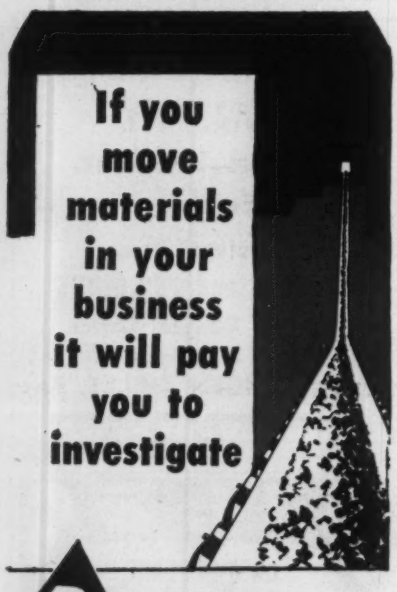

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Houston, Tex. Owner Builds. $693,925. Schedule 5, 26 DWELLINGS; Schedule 7, 33 DWELLINGS, near HOUSTON, TEX. CD 12/16.

Faulkner Building Co., 1800 Winkler St., Houston, Tex., CA $717,656, 61 DWELLINGS, near HOUSTON, TEX. C. B. Faulkner & Frank Thielen, West Bldg., Houston, Tex. CD 12/15.

▲ **Ellison Constr. Co.**, Westridge Park, San Antonio, Tex., CA $1,040,665. 101 DWELLINGS, SAN ANTONIO, TEX. Ray Ellison Homes, Inc., Westbridge Park, San Antonio, Tex. CD 1/3.

Southwestern Properties, Inc., Seagoville. Tex. Owner Builds. $629,615, Group 4. 20 DWELLINGS; Group 6, 23 DWELLINGS. SEAGOVILLE, TEX. CD 11/24.

▲ **Perlmutters, Inc.**, 1944 Broadway, Denver, Colo., Owner Builds, $2.000.000. 150-HOME project. AURORA, COLO. Warren A. Flickinger, 301 Vallejo St., Denver, Colo., engr.

Henry Arnoff & Son., c/o Ben Cook. 24 and Blake Sts., Denver. Colo. Owner Builds. $750,000, 7 floors and penthouse APARTMENT, DENVER, COLO.

▲ **F. & S. Constr. Co.**, 9000 N. Washington St., Denver, 16. Colo., LB. $1,000,000. SHOPPING CENTER. incl. 34 units, Millers Supermarket and other shops, DENVER, COLO. F. & S. Constr. Co., 850 Peoria St., Denver, Colo. Bids Dec. 29. CD 12/29.

▲ **Peri-Mack Constr. Co., Inc.**, 401 Vallejo St., Denver, Colo. Own Forces, $8,000,000, 600 HOME DEVELOPMENT between Westminister and Adams City, north of DENVER, COLO. Warren A. Flickinger. 301 Vallejo St., Denver. Colo., engr.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 16, 23, 24, March 2 California

▲† **Calif., Muroc**—HANGARS, etc.—BA 2/18—U. S. Eng., 751 S. Figueroa St., Los Angeles, relocating two hangars, boiler house, etc. Edwards Air Force Base, ENG-04-353-55-93, $1,000,000. CD 8/30.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

† **Lewis Hopkins Co.**, Pasco, Wash., LB, $773,313, est. $848,499. earthwork, canal lining, structures for Main Canal, Yakima Proj., Spec. DC 4311, WASHINGTON. Bureau Reclamation, Dpt. Interior, Kennewick, Wash. Bids Jan. 25. CD 12/14.

▲† **English Electric Export & Trading Co., Ltd.**, 23 Beaver St., New York, N. Y., LB, $5,460,361, furnishing generators for Chief Joseph Dam, Bridgeport, Inv. 55-29, WASHINGTON, U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids Feb. 1. CD 12/21.

† **General Electric Co.**, Public Service Bldg., Portland, Ore., CA $788,695. main generator circuit breakers and bus structures, The Dalles Dam, Wasco Co., CIVENG-35-026-55-83, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Jan. 11, awarded Jan. 28. CD 1/17.

▲† **Morrison-Knudsen Co., Inc.**, 319 Broadway, Boise, Idaho, CA. $2,407,076, grading S.P. & S. R.R., North Dalles to Washram (The Dalles Dam) Klickitat Co., CIVENG-35-026-55-104, OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids Jan. 18, awarded Jan. 28. CD 1/24, under LB.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles,

Guy F. Atkinson Co., Box 259, Long Beach, Calif., LB, $1,620,049, grading, surf. 2.4 mi., 2 steel plate girder bridges, 2 concrete box bridges on freeway between Euclid Ave. and College Ave., San Diego Co.;

Matich Bros. & Matich Bros. Paving Co., Box 390, Colton, Calif., LB, $748,257, grading, surf. 5.2 mi. between Marino and Jct. of Rt. 26, Riverside Co. Bids Jan. 27. CD 1/4.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Guy F. Atkinson Co., 10 W. Orange Ave., South San Francisco, Calif., CA, $1,565,103, grading, paving, 6 bridges etc. 2.4 mi. between Miramar Ave. and Park Pl., Santa Barbara Co. Bids Jan. 5, awarded Jan. 27. CD 1/18, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

M. J. B. Constr. Co. and Lord & Bishop, 322 Elks Bldg., Stockton, Calif., CA, $1,036,230. grading, paving, 4 bridges 3.4 mi. between Jahant Rd. and Sacramento Co. line, San Joaquin and Sacramento Counties. Bids Jan. 19. awarded Jan. 27. CD 1/28, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Piombo Constr. Co., P.O. Box 935, San Carlos, Calif., LB, $2,314,554, grading, surf., steel plate girder bridge 4 mi. between Vollmers and Lamoine, Shasta Co. Bids Jan. 26. CD 1/5.

† **A. Teichert & Son, Inc.**, 1931 Stockton Blvd., Sacramento, Calif., CA, $832,730, strengthen NE-SW runway, 4R-22L, ENG-04-167-55-25, Mather Air Force Base, Spec. 1905, SACRAMENTO, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Jan. 18, awarded Jan. 24. CD 1/28, under LB.

BUILDINGS
LOW BIDS AND CONTRACTS

Cherf Bros., Inc. & Sandkay Contractors, Inc., Ephrata, Wash., CA $673,923, 2 story, bsmnt., 44,600 ft., rein.-con., steel COURT HOUSE, ELLENSBURG, WASH. Kittitas Co., Court House, Ellensburg, Wash. Bids Jan. 18. CD 1/26, under LB.

▲† **J. W. Bateson, Inc.**, Gibraltar Life Bldg., Dallas, Tex., LB, $7,647,422, permanent HOUSING with streets, utilities, Inv. 55-93, FORT LEWIS, WASH. U. S. Eng., 435 E. Marginal Way, Seattle 4, Wash. Bids Jan. 27. CD 12/22.

▲ **Hoffman Constr. Co.**, 715 S.W. Columbia St., Portland, Ore., CA, $1,000,000. PAPER MILL FACILITIES, LONGVIEW, WASH. Weyerhaeuser Timber Co., Tacoma Bldg., Tacoma, Wash. CD 12/22.

Moore Built Homes, Inc., 9886 Garden Grove Blvd., Garden Grove, Calif. Owner Builds. $500,000. 50 stucco DWELLINGS, Tract 2328; $490,000, 49 stucco DWELLINGS, Tract 1868, GARDEN GROVE, CALIF. Action Engr. Co., 8605 E. Firestone Blvd., Downey, Calif., archts.

La Mirada Woods Bldg. Co., 1166 E. 58 St., Los Angeles, Calif., Owner Builds, $510,000, 50 frame, stucco DWELLINGS, Barnwall St. and Elmbrook Dr., LA MIRADA, CALIF. Wm. Bray, 962 N. La Cienega St., Los Angeles, Calif., archt.

▲ **W. R. Kalsched Co.**, 201 San Jose Ave., San Jose, Calif., LB, $1,549,500, 60-bed HOSPITAL, NILES, CALIF. Washington Township Hospital District, 539 Main St., Niles, Calif. Bids Jan. 20. CD 12/15.

Federal Built Homes, Bradley Constr. Co., 1340 E. Wilson St., Glendale, Calif., CA $735,700, 98 DWELLINGS, Pond Ave. and 32 St., PALMDALE, CALIF. Palmdale Homes, Inc., 1340 E. Wilson St., Glendale, Calif.

Hughes Constr. Co., S. Seventh St. at Phelan, San Jose, Calif., LB, $612,950, Shallenberger Elementary SCHOOL; and Booksin Elementary SCHOOL, SAN JOSE, CALIF. San Jose City Unified School Dist., 408 Alameden Ave., San Jose, Calif. Bids Jan. 26. CD 1/7.

Utah Constr. Co., 100 Bush St., San Francisco, Calif., LB, $841,125, 83-bed COUNTY HOSPITAL, UKIAH, CALIF. Mendocino Co., Court House, Ukiah, Calif. Bids Jan. 24. CD 1/4.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 17 British Columbia

BIDS ASKED—BUILDINGS

▲ **Que., Montreal**—OFFICE—BA 2/14—Sherburn Realty Corp. Ltd., c/o Greenspoon, Freedlander & Dunne, archts., 4151 Sherbrooke St. West., 12 story above grade, 6 below grade pigeon hole type parkng garage, rein.-con., brick, office, Burnside St. at University Ave., $3,000,000. Irving S. Backler, 4838 Fulton Ave., engr.

▲ **Man., Winnipeg**—WAREHOUSE—BA 2/28—Marshall-Wells Co., Ltd., Market and Rorie Sts., warehouse, Ellice Ave. $1,500,000. Moody & Moore, 295 Broadway Ave., archts. Loren B. Abbett, 1409 Willow St., Minneapolis, Minn., U. S. A., archt. CD 12/20.

Ont., Ottawa—LABORATORY—BA 3/2—Dpt. P. Wks., Hunter Bldg., acoustics laboratory, National Research Council, Montreal Rd. $500,000. Plans deposit $150. E. A. Gardner, c/o owner, archt. CD 12/29/50.

▲ **Ont., Toronto**—HOSPITAL WING—BA 3/8—Toronto General Hospital, 101 College St., superstructure of center block and north wing of hospital addn. Total cost $16,000,000. Mathers & Haldenby, 15 St. Mary St., archts. CD 10/5/51.

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **M. Sullivan & Son Ltd.**, 234 Elgin St., Arnprior, Ont. CA, $1,000,000. superstructure of DEPARTMENT STORE, Carling Ave. at Woodruff Rd., OTTAWA, ONT. Simpson-Sears Ltd., 176 Yonge St., Toronto, Ont. Bids Dec. 30. CD 12/28.

Morel Constr. Co. Ltd., St. Bruno, Que., CA $500,000, 2 story, 200x60 ft., SHOPPING CENTER incl. 22 stores, 100x200 ft. civic center, on new blvd., ST. BRUNO, QUE. Bruno Investment Co., 1701 Rue Mont Arville, St. Bruno, Que. Emilien Bujold, 6904 Molson St., Montreal, archt.

▲ **J. Serrention Constr. Co. Ltd.**, 6660 Decarie Blvd., Montreal, Que., CA, $1,600,000. BAKERY, 26-acre site, on Viau St. and Ray Murphy Ave., MONTREAL, QUE. Christie Brown & Co. Ltd., 200 Lakeshore Rd., Toronto, Ont. Bids Jan. 18, awarded Jan. 28. CD 12/27.

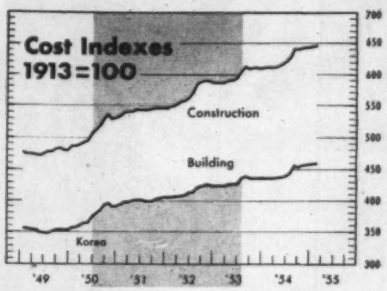
ALASKA

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

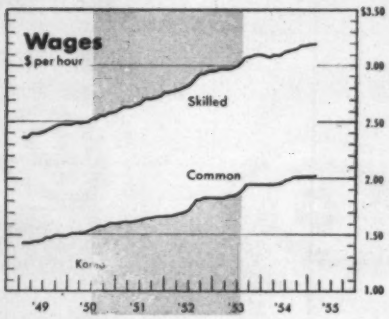
▲† **Morrison-Knudsen Co., Inc., Hoge Bldg., Seattle**, Wash. CA $3,179,528, constr. U. S. Air Force Facilities, incl. barge unloading terminals, alert hangar, crash station, airmen's dormitories, storage tanks, fuel transfer and pumphouse, dry wells and foam pumphouse, truck fill stands, bulk supply warehouse, utilities, clearing and excavation, grading and roads at King Salmon Airport, Inv. 55-43, near NAKNEK, ALASKA. U. S. Eng., Arcade Bldg., Seattle 1, Wash. Bids Jan. 18. CD 1/21, under LB.

(Proposal Advertisements see pp. 101 to 103)

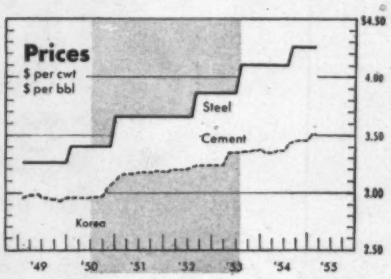
FEBRUARY CONSTRUCTION SCOREBOARD



ENR INDEXES (1913=100), 20-cities' average	1955 Feb.	% Change from last Month	% Change from last Year
Construction Cost	645.84	+0.2	+ 5.1
Building Cost	459.43	+0.3	+ 5.1
WAGE RATES, 20-cities' average			
Common	$2.022	0.0	+ 3.8
Skilled (aver. 3 trades)	3.188	0.0	+ 3.1
Bricklayers	3.457	0.0	+ 2.8
Structural Ironworkers	3.171	0.0	+ 3.8
Carpenters	2.937	0.0	+ 2.9

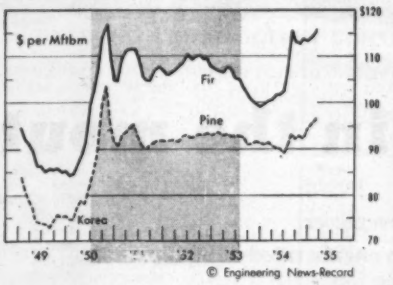


MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.517	0.0	+ 4.9
Structural Steel, (3-mill aver.), per cwt	4.250	0.0	+ 3.7
Sand, per ton	2.302	0.0	+ 4.5
Lumber, 2x4 Fir, per M. ft. bm	115.819	+1.4	+15.5
Lumber, 2x4 Pine, per M. ft. bm	96.600	+1.5	+ 5.6
Common brick, per M	33.342	+1.0	+ 1.2
Ready-mixed concrete, per c. y	12.414	+0.01	+ 3.6
Structural Clay Tile, 3x12x12 per M	158.624	0.0	- 0.9



CONTRACTS AWARDED (Millions)	1955 Jan.	1954 12-Mos. (52-Weeks)	% Change from 12-Mos. '53 Jan. '54	% Change from 12-Mos. '53 (53-Weeks)*
Total U. S. (ENR reported)	$1,295.3	$14,412.0#	+ 69.0	- 3.1
Private	806.3	8,125.3#	+130.2	- 4.4
Public	489.0	6,286.7	+ 17.5	- 1.5
Federal	163.2	1,285.7	+101.2	- 7.5
ENR Volume Index, '13=100	560	481	+ 65.7	- 4.9

$130 Mil. removed from Com'l Bldgs. (ENR Jan. 13, p. 81)



NEW CAPITAL (Millions)				
Total	517.5	11,421.7	+12.2	- 1.5
State & Municipal Bond Sales	278.4	5,931.5	+43.1	+20.2
Corporate Security Sales	231.1	2,595.1	- 8.8	-38.6
Federal (non-federal work)	8.0	788.6	-39.8	- 9.0
Federal (federal work)	.....	2,106.5	.....	+34.6

* Computed on weekly average

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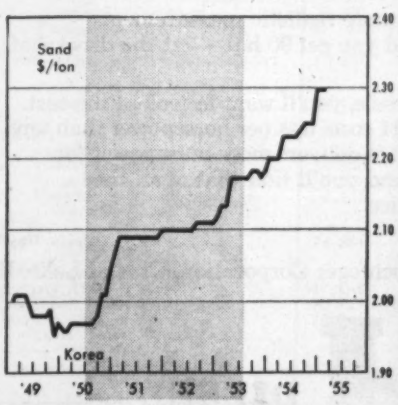
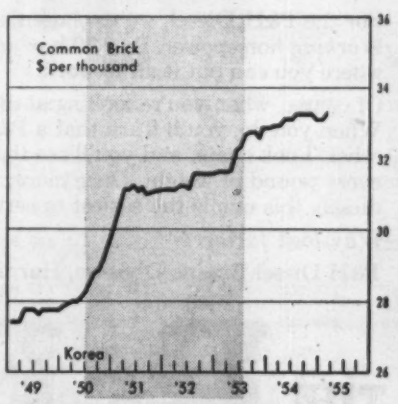
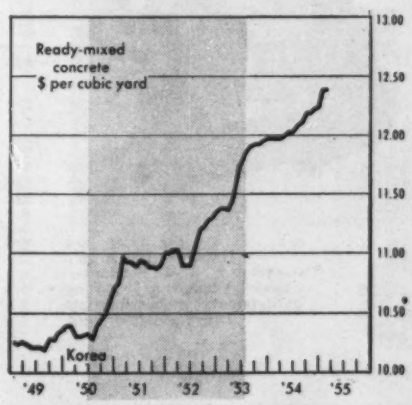
MATERIAL, SHIPMENTS & LABOR SUPPLIES (millions)	1954 Nov. (N) Dec. (D)	11-Mos. 12-Mos.	% Change from '53 Mo.	% Change from '53 Yr.-Cum.
Cement, bbls, Bu. of Mines	15.000(D)	269.353(12)	+ 6.2	+ 3.2
Fabr. Struc. Steel, tons AISC	.224(D)	3.136(12)	-16.1	+ 0.6
Lumber, mil. ft. bm., NLMA	3.068(N)	34.327(11)	+ 6.7	- 4.1
Lumber Prod., mil. ft. bm., NLMA	3.148(N)	34.383(11)	+ 2.3	- 5.5
Contract Const. Employ., BLS	2.550(D)	2.627(12)†	-3.1	- 0.6

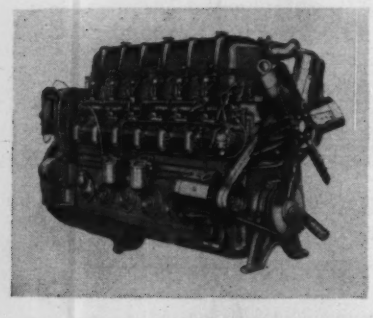
† Average







when to look a horse in the mouth



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lowest price per horsepower . . .
lowest weight per horsepower

January Contract Awards Top All Months Since May 1954

All types of private work show big gains. Federal volume is up, but state and local contracts lag behind

The construction boom keeps rolling right along. Contract awards reported to ENR in January totaled almost $1.3 billion—the second highest January on record. On the basis of average weekly awards, January was 18% above December and ahead of every month since May 1954.

Private contracts and high federal volume are responsible for this year's strong start. Private work is up 130% from January 1954 to a total of $806 million. Federal work, which was at the very low level of $81 million in January 1954, doubled that figure last month. But state and municipal work was off 3% from last year, to a total of $326 million. The state-and-municipal category is also off 15% from the January high in 1953.

• **Private contracts**—All major types of private work were strong last month, registering big gains over the low volume in January 1954. Mass housing awards averaged better than $110 million per week, second only to the record set in May 1954. For the month, housing contracts were up 153% above the preceding January. Compared with December, when total housing contracts set a record for the month, awards were up 51%.

Industrial building did even better on a percentage basis as compared with January 1954. Industrial contracts climbed to a total of $229 million, a 171% gain over the low level of a year ago. Commercial building racked up a total of $97 million, second largest January volume on record and 21% more than a year ago. Unclassified private work was more than three times the volume of January 1954.

• **Public contracts**—In the field of public work, the gain in federal volume kept nearly all types of construction ahead of January 1954, in spite of the slight decline in state and local contract awards.

Streets and roads were 13% ahead of January 1954, though behind December on an average weekly basis. Non-residential public buildings were up 25% from January 1953 and 21% from December. All other types were ahead of the same month in the previous year, except for the public housing category.

• **Regions**—All regions except the Mid-West show sharp increases over January 1954. Contracts in the West-of-Mississippi area are up 189%, followed by the Mid-Atlantic (up 108%); New England (94% increase); Far West (up 87%); and the South (27% increase). The Mid-West was down 8%.

ENR Cost Indexes Edge Up Again to New Record Highs

Scattered increases in lumber prices pushed ENR's Construction Cost and Building Cost Indexes up slightly to new highs. The February Construction Cost Index is 645.84, 0.2% above the previous all-time high in January. The Building Cost Index is 459.53, 0.3% higher than January's record high. Both indexes are based on 1913 = 100. Both indexes are 5.1% above a year ago.

Heavy demand in most parts of the country has pushed up the 20-cities average for Douglas fir 2x4s. It had dipped following the strike-induced high prices of last August. And pine prices show an even sharper uptrend than fir. Other key material prices and wage rates are unchanged.

(*B&F continued on page 96*)

ENGINEERING CONSTRUCTION CONTRACTS—JANUARY 1955

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation,* $44,000; *other public works,* $73,000; *industrial buildings,* $93,000; *other buildings,* $344,000

Four Weeks—Thousands of Dollars (000 Omitted)

	January, 1955						Total U. S.		%	Canada
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	January 1955	January 1954	Change '54 to '55	January 1955
Public Works										
Waterworks	3,227	5,815	1,844	12,880	4,657	588	**29,011**	15,070	+ 93	1,406
Sewerage	1,567	7,476	2,532	4,895	4,104	1,681	**22,255**	20,634	+ 8	364
Bridges	4,459	14,311	8,563	1,886	3,782	3,335	**36,336**	27,726	+ 31	169
Earthwork and drainage	187	22,110	2,516	258	2,744	7,020	**34,835**	27,752	+ 26	2,471
Streets and roads	13,265	49,325	14,632	8,883	20,547	12,091	**118,743**	105,083	+ 13	1,141
Public buildings, residential	1,080	1,260	1,199	619	.....	.....	**4,158**	20,707	− 80	2,019
Other public buildings	3,330	28,626	20,247	40,927	52,730	15,424	**161,284**	128,927	+ 25	14,306
Unclassified	15,182	8,533	21,975	8,840	17,567	10,315	**82,412**	70,096	+ 18	3,062
Total public	**42,297**	**137,456**	**73,508**	**79,188**	**106,131**	**50,454**	**489,034**	**415,995**	**+ 18**	**24,938**
Federal government (included in above classifications)	15,215	10,826	29,695	31,231	56,281	19,985	**163,233**	81,104	+101	7,782
Private										
Bridges	.....	.....	.....	.....	200	.....	**200**	.....	.....	.....
Industrial buildings	16,890	98,211	6,392	71,793	26,076	9,167	**228,529**	84,336	+171	17,915
Mass housing	2,050	128,544	11,050	82,911	115,029	102,747	**442,331**	174,583	+153	28,415
Commercial buildings	5,925	43,482	1,499	17,299	20,368	7,940	**96,513**	79,627	+ 21	13,240
Unclassified	.....	385	.....	660	34,610	3,048	**38,703**	11,779	+229	1,027
Total private	**24,865**	**270,622**	**18,941**	**172,663**	**196,283**	**122,902**	**806,276**	**350,325**	**+130**	**60,597**
Total Engineering Construction:										
January, 1955—4 weeks	**67,162**	**408,078**	**92,449**	**251,851**	**302,414**	**173,356**	**1,295,310**	.....	.....	**85,535**
December, 1954—5 weeks	70,421	463,569	115,735	182,011	375,447*	166,303	**1,373,486***	.....	+ 69	134,927
January, 1954—4 weeks	36,344	222,947	90,996	197,220	129,836	88,977	.....	766,320	.....	75,899
% Change '54 to '55	+94	+108	+27	−8	+189	+87	.....	.....	.....	+78

* Revised $130,000,000 removed from Commercial Buildings—ENR Jan. 13 page 81

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More Pikes Coming

Four possible projects may seek financing soon

This week, several proposed toll-road financings are making news:

That $390-million financing of a 191-mi Illinois toll-road system may be offered to the public before the end of February, according to Evan Howell, chairman of the Illinois Toll Road Commission. The commission has decided to go ahead with the bond issue, though there's a possibility that the property-owners whose legal action has been delaying the project may appeal from a recent adverse court decision.

The Illinois financing would be the biggest turnpike issue yet; and there have been plenty of big ones before now. It will pay for three toll roads: a belt highway around the Chicago area from Indiana to Wisconsin; a pike from Chicago to Rockford and then north to the Wisconsin line near Beloit; and a pike from Chicago to Aurora.

• **Private group**—Another possibility is the financing of a 224-mi turnpike by a private company, Texas Turnpike Corp., between Dallas and Houston. A $140-million issue is being considered. This is a low cost for 224 mi of toll road; but backers say it's due to the fact that the terrain is very level. The company must take action by late this month, or lose its exclusive franchise. However, it would still be in the running after that date.

If this turnpike goes through, it would be the first privately owned toll road in many years.

Tentatively scheduled for Feb. 28 is a $74-million bond issue to pay for the proposed 103-mi pike between Hollywood and Fort Pierce. Finally, some of the problems arising out of local opposition to the Dallas-Fort Worth Turnpike have been cleared up. The $64-million issue probably will be offered in April or May. It would finance 30 mi of turnpike in a heavily traveled corridor.

• **Freeway vs. toll road**—The project had been stalled because east side Fort Worth residents protested use of a right-of-way previously designated for a freeway. This was cleared up when all three members of the State Highway Commission, all of whom are also connected with the Turnpike Authority, assured Fort Worth that the Highway Commission intends to build an east side freeway in the near future.

Building Cost and Price Roundup

Indexes, 1913 = 100

Weighted cost indexes	Orig. base	1954 Sept.	1954 Oct.	1954 Nov.	1954 Dec.	1955 Jan.	1955 Feb.
ENR Construction Cost.....	1913 = 100	641	642	643	643	644	**646**
ENR Building Cost.....	1913 = 100	454	456	456	457	458	**459**
Assoc. Gen. Contractors...	1913 = 100	431	432	432	432	**432**	....
American Appraisal*.....	1913 = 100	595	597	598	**598**	....	....
Weighted price indexes**							
Boeckh, comm'l. & mfg....	1926-29 = 100	454	454	**454**	...	....	....
Smith, Hinchman & Grylls..	1926 = 100	501	501	505	**505**	....	....
Contractor price indexes							
Aberthaw***.....	1914 = 100	395	...	...	**396**	....	.....
Austin.....	1926 = 100	353	...	...	**355**	....	....
Fuller.....	1913 = 100	...	**455**	...	...	....	....
Turner.....	1939 = 100	...	487	...	...	**487**	....

*Adjusted for estimated productivity.
**Includes overhead, profit, adjusted for estimated productivity.
***Indexes shown are based on 1914 = 100.

Building Costs in Slow Uptrend

Building cost indexes have changed little since the third quarter of '54. However, all of the changes since last September have been upward, reflecting some increases in materials prices.

Furthermore, while nearly all of the indexes have increased by only a slight amount, these increases have been larger than during the corresponding year-ago period.

The ENR cost indexes, which measure the trend in materials prices and wage rates paid by contractors in 20 cities, have increased more in the five months ended February '55 than in the same '53-'54 period.

The February ENR Construction Cost Index is 0.8% above the September '54 value, compared with a 0.6% rise in the '53-'54 period. The Building Cost Index rose 1.1% during the five months ended February '55, substantially more than the 0.3% rise of a year ago.

Other weighted cost indexes and contractor price indexes confirm the ENR trend. The American Appraisal Co. index edged up 0.5% in the fourth quarter of '54 compared with a 0.3% increase in the '53 quarter.

The E. H. Boeckh cost index for commercial and factory buildings, which includes contractor's overhead and profit, was up a slight 0.1% in the final quarter of '54, compared with a 0.1% dip in the fourth quarter of '53. The Smith, Hinchman & Grylls index, which is adjusted for productivity changes, increased 0.7% in the last quarter of '54 in contrast to a 0.7% decline in the '53 quarter.

Among the contractor price indexes, the Aberthaw Co. and Austin Co. building cost indexes increased by 0.2% and 0.5%, respectively, during the last quarter of '54. This compares with no change in the final three months of '53. The Turner Construction Co. index remained unchanged in the three months October '53 through January '55, whereas it dipped 0.7% in the same period a year ago.

The "exception that proves the trend" is the AGC Construction Cost Index which increased 0.2% in the September '54-January '55 period, about the same as in the corresponding months a year ago.

Equipment Prices Up

Construction machinery and equipment prices are going up. The BLS has just revised upward its December '54 index of manufacturers' prices to include a 1.8% hike in power crane and shovel prices. The revised December '54 index for all types of equipment is 132.6 based on 1947-49 = 100, up 0.6% over November '54.

Equipment prices continued to climb during January. The BLS index rose 0.4% over the revised December value to a new all-time high of 133.1. This is 1.4% higher than a year ago. The January increases ranged from 2.5% for portable compressors to 0.3% for power cranes and shovels (on top of the 1.8% December rise). Other increases were reported for: mixers and pavers, 0.8%; machinery for mounting on tractors, 0.6%; and non-farm tractors, 0.5%.

(B&F continued on page 98)

CIVIL ENGINEERING HANDBOOK

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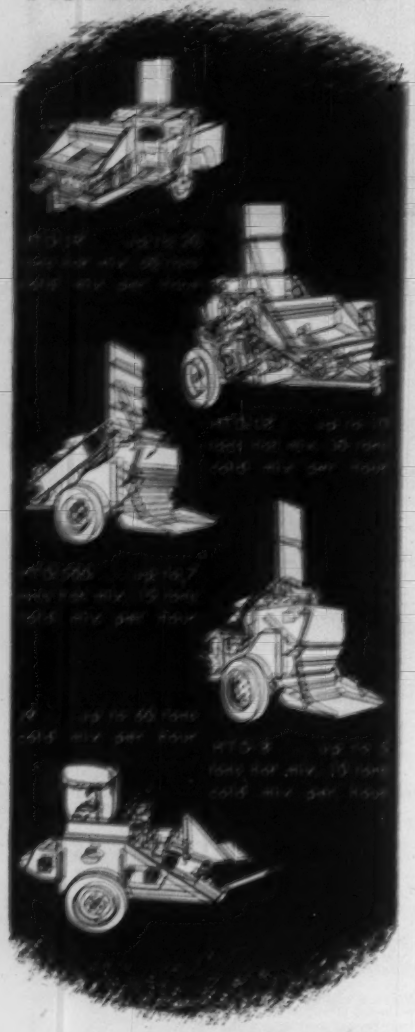

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BUSINESS AND FINANCE

Business Briefs . . .

• **British firms** buy in Control of Commonwealth Construction Co., Vancouver, has been bought by a group of British companies. They are: Edmund Nuttall Sons & Co., Ltd.; J. L. Eller & Co., Ltd.; and F. G. Minter, Ltd.

• **California shopping center**—San Francisco financier Benjamin Swig plans a $7-million shopping center and residential development in Concord, Calif.

• **Another merger**—Gardner-Denver Co., of Quincy, Ill., has acquired Keller Tool Co., of Grand Haven, Mich. Keller's portable pneumatic tools will complement Gardner-Denver's line of air compressors, air tools, and other pneumatic equipment.

• **Pennsylvania Turnpike revenue** in 1954 was 1% below 1953, according to the official report. Though 1,800,000 more passenger cars used the turnpike, truck and bus traffic fell off.

• **Kaiser Steel Corp.** has entered the field of steel fabrication and erection by buying the assets of Union Steel Co., Los Angeles.

• **New prefab builder.** Empire Homes, Inc., is starting production in Louisville, Ky., with about 18 homes per day. The houses will sell in the $8,000 to $18,000 price range and will be marketed all over the U.S. The company was organized by several former executives of U. S. Steel Homes in New Albany, Ind., and by suppliers of various prefab materials.

• **Big wallboard plant** will be built by U.S. Gypsum Co. at Stony Point, N. Y.

• **Rocky Reach,** a proposed hydroelectric dam on the Columbia River north of Wenatchee, Washington, has moved a step closer to reality. The Chelan County Public Utility District has retained Stone & Webster Engineering Corp. to make preliminary studies for the $347-million project. President Eisenhower also has asked Congress to appropriate $2 million as the first payment on a total federal contribution of $10 million.

• **Luxury hotel** in Denver will be taking bids in about 90 days, according to Denver real estate developer Leon Ducharme. The building would cost about $2.5 million, and would be located on a nine-acre site.

Activity This Week

As reported to ENR
(In millions of dollars)

Amount of contracts let

	This Week	Cumulative 5 wks. 1955	Cumulative 5 wks. 1954	% chge
Federal	$90.7	$220.4	$133.0	+66
State and municipal	119.8	512.3	446.2	+15
Total public	146.5	732.7	559.2	+31
Total private	152.4	1,141.4	598.3	+91
U. S. Total	$298.9	$1,874.1	$1,157.5	+62

Contracts by type of work

Waterworks	$3.4	$35.4	$23.1	+54
Sewerage	16.4	66.6	37.1	+79
Bridges	16.9	62.3	39.9	+56
Highways	41.2	196.3	145.1	+35
Earthwork, waterways	19.1	57.0	33.1	+72
Buildings:				
Public, excl. hsg.	21.4	105.2	173.0	+22
Housg., public	3.4	7.7	28.2	−73
Housg., private	114.5	684.0	298.0	+130
Commercial	16.1	127.5	114.8	+11
Industrial	16.8	281.7	162.8	+73
Unclassified	29.3	182.2	110.8	+64
Total	$298.9	$1,874.1	$1,157.5	+62

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

New capital for construction
(millions of dollars)

	Week of Feb. 3 1955	Cumulative 5 wks 1955	% chge '54-'55
Corporate securities	$34.0	$265.0	−17
State and municipal:			
All except housing	96.5	343.9	+47
Housing	...	31.0	+192
Federal loans	...	8.0	−47
Federal aid	...	...	...
Total non-federal	$130.5	$648.0	+12
Federal appropriations:			
In U. S.	...	...	...
Outside U. S.	...	...	...
Total new capital	$130.5	$648.0	+12

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost	2/3/55†	645.84	310.46	135.39
	12/30/54†	644.32	309.72	135.07
Building cost	2/3/55†	459.43	248.35	130.60
	12/30/54†	457.91	247.43	130.17
Volume	Jan.	560	228	162
	Dec.	464	189	134

† Official monthly indexes for Jan. 1 & Feb. 1

AFL officials at Miami blast Mitchell for . . .

Wage Chiseling "Gimmicks"

The long-time harmony between AFL building trades unions and Labor Secretary James P. Mitchell—stemming from Mitchell's World War II days as the Pentagon's construction specialist—cracked wide open last week. And a bitter feud continues over wages on federal construction projects.

Led by AFL president George Meany, the Building Trades Department at its mid-winter meeting in Miami charged Mitchell with the use of "new and novel gimmicks" to undermine union wages in federal construction.

While Meany's attitude was no surprise, his stand was initiated by one of Mitchell's staunchest labor supporters, Building Trades Department president Richard Gray, a life-long Republican. Gray claims "documented evidence" to back charges that Mitchell:

- Is undercutting union wage rates by setting dual pay scales in federal construction permitting non-union contractors to take government contracts away from organized firms.
- Is failing to enforce the law against violators who are not paying the legal rate.
- Won't support changes in the Davis-Bacon Act that now allows other federal agencies to stall on application of his orders until enforcement action is finally dropped.
- Has refused to include "fringe benefits" in his wage orders to take into account health and welfare costs provided in union contracts.

In rebuttal, the Labor Secretary says the AFL is "misinformed" and cites the blacklisting of 20 contractors for violations of wage orders—twice the number of blacklistings over the past 20 years. Mitchell invited the AFL to discuss its charges with him. Gray promised to show Mitchell his evidence—but it now looks like a stalemate.

Building trades officials concede that Mitchell is correct about lack of enforcement of Davis-Bacon under the Democrats. It's recalled that Gray supported the Eisenhower Administration with the prediction that it would bring better administration of the law—and Mitchell claims to have followed through.

One indication of the Mitchell-building trades cooperation was the appointment of Gray's son, Cornelius, to handle Davis-Bacon enforcement last summer. Gray served for four months but, according to Meany, quit in protest to Mitchell's program.

• Not enough?—Paradoxically, the argument centers mainly on Mitchell's refusal to do a great deal more for AFL craft unions than previous Democratic administrations accomplished. In part, what the unions want can not now be legally handled under Davis-Bacon provisions.

The federal law gives the Labor Secretary authority to fix wage rates for employes of contractors on government construction jobs. The AFL claims that more than $12 billion of construction, put-in-place last year was subject to Davis-Bacon wage determinations—about a third of all new construction.

Enforcement of the Secretary's wage orders is in the hands of federal agencies who let the contracts, in cooperation with the Justice Department. And the law makes no provision for the Secretary to include fringe benefits in issuing wage orders.

• The evidence—Specifically, Gray charges Mitchell with setting low wage rates. He claims the Secretary issues dual orders for "outside" and "inside" construction that permit contractors to hire workers at below union scale.

Normally, AFL craft unions doing heavy construction work outdoors are paid about $1 less an hour than the indoor rate. By using this double scale, the AFL says, contractors misclassify workers when they're brought inside and the union rate is not followed.

In pin pointing the AFL's complaints, Meany cited the case of a Fort Worth, Tex. contractor, the H. B. Zachry Construction Co. He says a federal court injunction was in effect against Zachry for Davis-Bacon violations when the government awarded the firm an $18-million Air Force contract. The award was made, he added, despite assurances to the contrary that were received from federal officials.

In its claim that Mitchell has "flatly refused" to sponsor legislation amending Davis-Bacon, the AFL failed to note that the Labor Secretary has repeatedly promised to seek changes in the eight-hour provision of the law to require contractors to pay workers overtime rates at the end of eight hours' work.

Many of the AFL's charges fall outside Mitchell's authority. But laying the "blame" at the Labor Secretary's doorstep signals a major break between Mitchell and Gray that promises important political repercussions—with Davis-Bacon as one of the footballs.

OFFICIAL PROPOSALS

RATE: The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.

CLOSING DATE: Friday 10:30 A.M. for issue dated the following Thursday.

SEND COPY TO: Official Proposal Division, Engineering News-Record, 330 West 42nd Street, New York 36, N. Y.

Bids: February 24, 1955

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Article 2, Title 9 of the Public Authorities Law, sealed proposals will be received until ten-thirty o'clock A.M., eastern standard time on the 24th day of February 1955, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

DISTRICT No. 2, LACY KETCHUM, District Engineer, 109 No. Genesee Street, Utica, N. Y.
DISTRICT No. 3, William Robinson, District Engineer, 301 E. Water Street, Syracuse, N. Y.
DISTRICT No. 4, E. G. H. YOUNGMANN, District Engineer, Barge Canal Terminal, Rochester, N. Y.
DISTRICT No. 5, C. R. WATERS, District Engineer, 65 Court Street, Buffalo, N. Y.

Oneida, Madison, Cayuga, Seneca, Onondaga, Genesee, Monroe, Ontario, & Erie	T.T.S. 55-1	New York State Thruway Mohawk and Ontario Sections		Furnishing and Installing 7,000 Roadside Delineators	$1,700 Plans $10	$31,000

N.B.: Plans and Proposals for the above contract will be distributed only from our Albany and New York City Offices — but will be exhibited for examination at our District 2, 3, 4, and 5 offices where work is located.

DISTRICT No. 2, LACY KETCHUM, District Engineer, 109 No. Genesee Street, Utica, N. Y.

Oneida	M.T. 55-1	New York State Thruway—Mohawk Section—Sub. 6 (Westmoreland Gas Station & Restaurant Site)	....	Grading, Paving & Misc. Work.....	$12,000 Plans $10	226,000

DISTRICT No. 3, WILLIAM ROBINSON, District Engineer, 301 E. Water Street, Syracuse, N. Y.

Cayuga	O.T. 55-2	New York State Thruway—Ontario Section—Sub. 4 (Port Byron Gas Station & Restaurant Site)	....	Grading, Paving & Misc. Work	$12,000 Plans $10	224,000
Onondaga	O.T. 55-1	New York State Thruway—Ontario Section—Sub. 7 (Warners Gas Station & Restaurant Site)	....	Grading, Paving & Misc. Work	$12,000 Plans $10	225,000
Onondaga	M.T. 55-2	New York State Thruway—Mohawk Section—Sub. 8B (East Syracuse Gas Station & Restaurant Site)	....	Grading, Paving & Misc. Work	$15,000 Plans $10	268,000

DISTRICT No. 4, E. G. H. YOUNGMANN, District Engineer, Barge Canal Terminal, Rochester, N. Y.

Genesee	O.T. 55-5	New York State Thruway—Ontario Section—Sub. 2 (East Pembroke Gas Station & Restaurant Site)	....	Grading, Paving & Misc. Work	$13,000 Plans $10	233,000
Monroe	O.T. 55-4	New York State Thruway—Ontario Section—Sub. 8A (Scottsville Gas Station & Restaurant Site)	....	Grading, Paving & Misc. Work	$9,000 Plans $10	170,000
Ontario	O.T. 55-3	New York State Thruway—Ontario Section—Sub. 12 (Victor Gas Station & Restaurant Site)	....	Grading, Paving & Misc. Work	$12,000 Plans $10	220,000

DISTRICT No. 5, C. R. WATERS, District Engineer, 65 Court Street, Buffalo, N. Y.

Erie	O.T. 55-6	New York State Thruway—Ontario Section—Sub. 15 (Clarence Gas Station & Restaurant Site)	....	Grading, Paving & Misc. Work	$10,000 Plans $10	175,000

DISTRICT No. 8, J. S. BIXBY, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.

Orange	C.T. 55-1	New York State Thruway—Catskill Section—Sub. 5 (Modena Gas Station & Restaurant Site)	....	Grading, Paving & Misc. Work	$12,000 Plans $10	218,000
Orange	C.T. 55-2	New York State Thruway—Catskill Section—Sub. 5 (Plattekill Gas Station & Restaurant Site)	....	Grading, Paving & Misc. Work	$13,000 Plans $10	227,000
Orange	C.T. 55-3	New York State Thruway—Catskill Section—Sub. 5 (Newburgh to New Paltz) Union Ave. Highway Grade Separation (Co. Rd.)	0.30	Asph. Conc. Opt. Hgs Comp. I-Beam 292.4'	$14,000 Plans $10	255,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

John W. Johnson
SUPT. OF PUBLIC WORKS

Bids: February 24, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

NEW DURHAM ROAD

Construction of New Durham Road from Stelton-Dunellen Road to Dismal Road, Townships of Piscataway and Raritan and Borough of South Plainfield, Middlesex County, Federal Aid Secondary Project No. S-192(1)). Length 1.757 miles. The principal items of construction are:

Estimate:
5,586 cu. yds. Roadway Excavation
25,756 sq. yds. 5" Macadam Base Course
25,756 sq. yds. 3" Mod. Pen. Macadam
54,100 gals. Bituminous Binder
3,480 tons Bituminous Concrete
36 units Drop Inlets

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. on Thursday, February 24, 1955, at TEN o'clock (10:00 A.M.-EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Secondary Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the "Required Provisions—Federal-Aid Contracts" of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of TEN DOLLARS ($10.00) which will not be refunded for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., with a check drawn to the order of the State Highway Department. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPT.
A. Lee Grover, Chief Clerk

OFFICIAL PROPOSALS

Bids: February 24, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE S-40 (1927), SECTION 5A,
ROUTE 72 (1953)

Route S-40 (1927), Section 5A, Route 72 (1953), from Ship Bottom to Hilliard, Boring Contract, Borough of Ship Bottom and Stafford Township, Ocean County. Length 1.894 miles. The principal items of work are:

Estimated:

3,700 lin. ft. 2½" Casings Sunk for Dry Samples
725 Dry Samples, Preserved
25 Undisturbed Tube Samples Preserved

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Thursday, February 24, 1955, at TEN o'clock (10:00 A.M.— EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of TEN DOLLARS ($10.00) which will not be refunded for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, with a check drawn to the order of the State Highway Department. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: March 8, 1955

Contract TA-230.003

THE PORT OF NEW YORK AUTHORITY
TETERBORO AIRPORT
ADMINISTRATION BUILDING

Sealed proposals for the construction of an Administration Building at Teterboro Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, March 8, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, February 10, 1955

Bids: March 8, 1955

Contract NYA-570.001

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
BUILDING NO. 143

Sealed proposals for the construction of Building No. 143 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, March 8, 1955, at which time and place said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, February 10, 1955.

Bids: March 9, 1955

Power Authority of the State of New York

FOR
CONSTRUCTION OF
LONG SAULT DAM
NEAR MASSENA, ST. LAWRENCE
COUNTY, NEW YORK
SPECIFICATION NO. PA-5-11002
ST. LAWRENCE CONTRACT NO. 8

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of Long Sault Dam and appurtenant works near Massena, St. Lawrence County, New York until 10:30 A.M. Eastern Standard Time on the 9th day of March, 1955 at the Authority's office, 270 Broadway, Room 1207A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

The principal items of work are:

Estimated

5,752,000	cu. yds.	Earth or rock excavation for Cut F and channel work
1,189,000	cu. yds.	Embankment and riprap for wing dams, dike and roads
300,000	cu. yds.	Earth excavation for dam
75,000	cu. yds.	Rock excavation for dam
700,000	cu. yds.	Borrow excavation
407,200	cu. yds.	Concrete
2,431	tons	Structural steel
5,809	tons	Erection of gates and cranes
76,000	lin. ft.	Drill holes for exploration and grouting

The work shall be completed on or before December 30, 1958.

Plans, specifications and Proposal Forms for the work will be on file after January 7, 1955 in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, after January 7, 1955 upon application and prepayment of a fee of Fifty ($50.00) dollars per initial set and Twenty-five ($25.00) dollars per set for additional sets no part of which will be refunded.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 10 percent of the gross sum bid except that guarantee in excess of $2,000,000 will not be required.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: March 10, 1955

County of Hudson

NOTICE TO CONTRACTORS

Sealed bids will be received by The Board of Chosen Freeholders of the County of Hudson on

THURSDAY, MARCH 10, 1955

at 11:00 A.M., EST., in the Freeholders' Assembly Chamber at Hudson County Court House, Newark Avenue, Jersey City, New Jersey, for the following contracts for construction of the Hudson County Administration Building, Jersey City, New Jersey—

Contract No. 2—General Construction Work.

Contract No. 3—Structural Steel and Ornamental Iron Work (Titled in Specifications as Structural Steel and Miscellaneous Iron Work).

Contract No. 4—Plumbing and Gas Fitting and Kindred Work (Titled in Specifications as Plumbing Work).

Contract No. 5—Steam and Hot Water Heating and Ventilating Apparatus Work (Titled in Specifications as Heating and Ventilating Work).

Contract No. 6—Electrical Work.

Contract No. 7—Elevator Work.

in accordance with drawings, specifications, alternates and addendums obtained at the office of Mascolo & Masumian, Architects, Room #703, 880 Bergan Avenue, Jersey City, New Jersey, upon deposit of $50.00 per set in the form of certified check, which deposit will be refunded upon return of drawings, specifications, alternates and addendums in good condition and intact to the Architects. Blank Proposal forms to be obtained with each set.

Each bid must be accompanied by (a) cash or certified check payable to the order of Treasurer of the County of Hudson in a sum equal to ten per cent of the bid, the deposit to be subject to the conditions in the specifications; (b) a certificate from a surety company authorized to do business in New Jersey, that such company will provide the bidder with bond or bonds called for in the specifications, and in the amount of the contract price; (c) a certificate, as required by the specifications, showing that the bidder owns, controls or will control all necessary equipment; and (d) a written statement of the bidder setting forth his present financial position and prior experience in doing such work as must be done to execute the tasks required by the plans and specifications.

Bids must be enclosed in sealed envelopes endorsed in the follow manner: "Proposal for Contract No. 2—General Construction Work, Hudson County Administration Building", and similarly for other contracts, and handed to the Clerk of the Board of Chosen Freeholders in open meeting on March 10, 1955 when called for in the order of business transacted. No bid will be received previous to the hour aforesaid, and none will be received thereafter. At such time and place all bids received will be unsealed immediately, the contents thereof will be publicly announced and a proper record of the bids and terms will be made upon the minutes of the Board.

Attention of bidders is called to the existence of statutes and regulations relative to safety of workmen, hours of labor, workmen's compensation insurance, preference for and prohibition of certain types of labor, anti-discrimination against labor, and other particular statutes and regulations affecting the proposed public work, together with regulations, rules and ordinances of the municipality in which the work is to be done. One submitted, no bid can be withdrawn without consent of the Board of Chosen Freeholders, and the said Board of Chosen Freeholders reserves the right to reject any and all bids to waive any defects in the bids or bid proposals when it is deemed advisable to do so.

JOSEPH B. CULLOO, Clerk.
Board of Chosen Freeholders.
County of Hudson, N. J.

OFFICIAL PROPOSALS

Bids: February 25, 1955

Woodbourne Water District Town of Fallsburgh, N. Y.

1. Sealed proposals for Contract I for construction of Water Supply Wells in the Woodbourne Water District will be received by the Town Board, Town of Fallsburgh, Sullivan County, New York, until 2:00 P.M., E.S.T., February 25, 1955 in the Town Clerk's Office at South Fallsburgh, and there publicly opened and read immediately thereafter.
2. The work consists of drilling test wells, constructing two permanent Wells by the reverse rotary drilling method and installing pumps and motors.
3. Plans, specifications, bidding and contract documents may be examined at the Town Clerk's Office and at the Office of the Consulting Engineers, Alexander Potter Associates, 50 Church St., New York 7, N. Y., and there be obtained upon a Deposit of Ten ($10.00) Dollars Per Set.
4. Full refund will be made to actual bidders for return of one (1) set in good condition, within two weeks after the closing date for receipt of bids; refund for return of all other sets in good condition by actual bidders within the same period will be Fifty (50) Percent of the Deposit.
5. All proposals must be on the form contained in the Specifications.
6. All bids must be accompanied by a certified check in the amount of Ten (10) Percent of the amount of the Bid, made payable to the Town of Fallsburgh. Said checks will be refunded to all, except the two (2) lowest bidders, not later than ten (10) days after Opening of Bids.
7. The successful bidder will be required to furnish a Performance Bond conditioned upon the faithful performance of the Contract and upon the payment of all persons supplying labor and furnishing materials on the construction of the work.
8. No bidder may withdraw his Bid within Thirty (30) Days after closing date for receipt of bids.
9. The Town Board reserves the right to reject any or all bids and to waive any informality in the Bid, and to accept that Proposal which, in its judgment, best serves the interests of the Water District.

WOODBOURNE WATER DISTRICT
TOWN OF FALLSBURGH, N. Y.
By: Mortimer Michaels, Supervisor
DATE: February 1, 1955

Bids: March 8, 1955

Contract LT-160.022

THE PORT OF NEW YORK AUTHORITY
LINCOLN TUNNEL
THIRD TUBE
WIDENING OF WEST 41ST STREET FROM DYER AVENUE TO TENTH AVENUE

Sealed proposals for widening of West 41st Street from Dyer Avenue to Tenth Avenue, in the Borough of Manhattan, New York, New York, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, March 8, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnishd upon deposit of $30.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $30.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, February 10, 1955

OFFICIAL PROPOSALS

Bids: March 15, 1955

Power Authority of The State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF 150 TON AND 210 TON GANTRY CRANES
SPECIFICATIONS NO. PA-5-15075
ST. LAWRENCE CONTRACT NO. P6

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture, and furnishing of two (2) 150 ton gantry cranes and (2) 210 ton gantry cranes and delivery thereof f.o.b. destination, until 10:30 A.M. Eastern Standard Time on the 15th day of March, 1955 at the Authority's office, 270 Broadway, Room 1207A, New York 7, New York, at which time and place proposals will be publicly opened and read aloud.

Bids will be entertained for 2 or 4 gantry cranes and associated equipment and services in accordance with the bidding schedules. Erection at the site of installation will be done by others but services of an erection engineer shall be provided by the manufacturer, if and when required.

Plans, specifications and Proposal Forms for the work will be on file in the Authority's Office after January 28, 1955 and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours.

Plans, specifications and Proposal Forms may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1207A, New York 7, New York after January 28, 1955 upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents and Five ($5.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid deposit will be required with each bid in an amount not less than 10 percent of the maximum price bid for any bid schedule.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: February 24, 1955

State of New Jersey State Highway Department Trenton

READVERTISEMENT

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 42, SECTION 12-B, NORTH-SOUTH FREEWAY

Route 42, Section 12-B, North-South Freeway, from Station 212+0 to Route U. S. 130; Grading, Bridges and Incidental Paving, Gloucester City, Camden County. Federal Project No. U-193(2). Length 0.791 miles. The principal items of work are:

Estimated:

Roadway Items

46,139	cu. yds. Roadway Excavation—Earth
361,703	cu. yds. Wet Excavation
1,235,000	cu. yds. Borrow Excavation
14,053	sq. yds. Macadam Base Course, 8" thick.
14,000	sq. yds. Pavement Type MA-BC-2, 3" thick
19,850	sq. yds. Conc. Pavement Surface, Rein. 9" thick
1,150	lin. ft. Clay Pipe, Sanitary Sewer
4,315	lin. ft. Reinforced Concrete Culvert Pipe
1,594	lin. ft. Cast Iron Sewer & Culvert Pipe
2,019	lin. ft. Corrugated Metal Culvert Pipe
54	Inlets and Manholes
19,150	line. ft. White Concrete Vertical Curb

Bridge Items

5,788	cu. yds. Foundation Excavation
8,216	cu. yds. Concrete in Structures
773,206	lbs. Reinforcement Steel in Structures
2,095,500	lbs. Structural Steel
38,156	lin. ft. Timber Piles
10,395	lin. ft. Concrete Piles

OFFICIAL PROPOSALS

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Thursday, February 24, 1955, at TEN o'clock (10:00 A.M.-EASTERN STANDARD TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 413, 82nd Congress, and by an agreement with the Delaware River Port Authority, and is to be performed in accordance with the Required Provisions—Federal-Aid Contracts of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications. The attention of the bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, New Jersey, and may be inspected by prospective bidders during office hours. Plans will be furnished upon payment of a fee of TEN DOLLARS ($10.00), which will not be refunded, for each set of plans upon application to A. Lee Grove, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, with a check drawn to the order of the State Highway Department. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: STATE HIGHWAY DEPT.
A. Lee Grover, Chief Clerk

CONTRACTORS
WATCH
THIS SECTION

for New Projects

Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

OFFICIAL PROPOSALS

Bids: March 8, 1955

New Jersey Turnpike Authority

CONTRACT NO. W-5

Proposals are invited for Contract No. W-5 which involves grading, drainage, structures, paving and other incidental work from Interchange No. 16 (Lincoln Tunnel) in Secaucus, Hudson County to Interchange No. 18, George Washington Bridge at Route U. S. 46 in Ridgefield Park, Bergen County, New Jersey, all in connection with the construction of the Turnpike Widening of the New Jersey Turnpike.

The principal items of work include:

Roadway Excavation	75,000 cu. yds.
Borrow Excavation	245,000 tons
6" Topsoiling	354,000 sq. yds.
Storm Drains, Reinforced Concrete Pipe	6,418 lin. ft.
Manholes and Drop Inlets	46 units
Asphaltic Concrete Pavement	80,000 sq. yds.
Asphaltic Concrete Pavement Resurfacing	4,000 tons
Type F Shoulder	69,000 sq. yds.
Bridge Approach Slabs	650 sq. yds.
Steel H-Piles	32,000 lin. ft.
Concrete—All Types	3,765 cu. yds.
Reinforcement Steel	514,700 lbs.
Structural Steel	650,000 lbs.
Curb	2,100 lin. ft.
Guard Rail	18,815 lin. ft.

Proposals will be received at the New Jersey Turnpike Authority Administration Building, New Brunswick, New Jersey, until 11:00 O'Clock, Eastern Standard Time on the morning of March 8, 1955, at which time and place said proposals will be publicly opened and read.

Bidders must submit with their proposal a Contractor's Financial and Equipment Statement.

Contract documents may be examined during office hours after February 8, 1955 at the office of the Authority and at the office of the Consulting Engineers, Porter, Urquhart & Beavin, 415 Frelinghuysen Avenue, Newark, New Jersey. Contract documents will be furnished upon payment of Fifteen Dollars ($15.00) for each set, upon application to the Authority. Contract documents are not required to be returned and the payment will not be refunded.

NEW JERSEY TURNPIKE AUTHORITY
Paul L. Troast, Chairman

February 8, 1955

Bids: March 8, 1955

Contract HT-160.001

THE PORT OF NEW YORK AUTHORITY
HOLLAND TUNNEL
NEW JERSEY SERVICE BUILDING
AND
ALTERATIONS TO ADMINISTRATION BUILDING

Sealed proposals for the construction of a service building and performance of alterations to the Administration Building for the Holland Tunnel at Jersey City, New Jersey, will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, March 8, 1955, at which time said proposals will be opened and read in Room 1108.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1112. Documents will be furnished upon deposit of $50.00 per set for not more than three sets to any one company (each set including one copy of the contract drawings). Additional sets will be furnished upon payment of $50.00 per set, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to Room 1112, where the documents will be furnished.

Those who have submitted a bid on the contract will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of the documents, not exceeding three, returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman

New York, February 10, 1955.

OFFICIAL PROPOSAL

RATE: $1.50 per line (or fraction) per insertion.

CLOSING DATE: 10:30 p.m. Friday for issue out following Thursday.

SEND COPY: Official Proposal Division, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Bids: March 1, 1955

Construction of Sewer Improvements and Trunk Sewers City of Tampa, Florida

Sealed proposals for construction of Sewer Improvements and Trunk Sewers, complete with all appurtenances, will be received at the regular meeting place of the Board of Representatives, City Hall, Tampa, Florida, until 2 P.M., E.S.T., March 1, 1955, there to be publicly opened and read aloud.

The approximate quantities of the principal work involved are as follows:

Sewer Improvements

Div. XE12—53,670 Lin. ft. 8 and 10-inch V.C. pipe sewers
Div. XE13—41,130 Lin. ft. 8, 10 and 15-inch V.C. pipe sewers
Div. XE14—38,770 Lin. ft. 8 to 18-inch V.C. pipe sewers
Div. XE15—37,290 Lin. ft. 8 and 10-inch V.C. pipe sewers

Trunk Sewers

Div. XE16—27,325 Lin. ft. 8, 10 and 12-inch V.C. pipe sewers
Div. XC6—9,733 Lin. Ft. 24, 18 and 15-inch V.C. pipe sewers

Plans and Contract Documents for the sewer improvement divisions and for the trunk sewer division may be examined and obtained from the offices of the Bureau of Sanitary Sewers, 6th Floor, City Hall, Tampa, Florida, and from the offices of Greeley and Hansen, 220 South State Street, Chicago 4, Illinois. A deposit of $25.00 is required for each of the two sets of contract documents.

City of Tampa, Florida
By Curtis Hixon, Mayor

Dated February 2, 1955

Bids: March 10, 1955

State of Maryland

STATE ROADS COMMISSION
NOTICE TO CONTRACTORS

SEALED PROPOSALS for the following contract:

PATAPSCO TUNNEL PROJECT
BALTIMORE CITY—CONTRACT P. T. 108
—RIVER TUNNEL AND SHAFTS

Construction of the River Tunnel and Shafts of the Patapsco Tunnel Project in Baltimore City. The Tunnel extends from a point on the south shore of the Patapsco River, approximately 0.2 mile east of Childs Street in Fairfield, Baltimore City, to a point on the north shore of the Patapsco River, immediately east of Clinton Street in Canton, Baltimore City.

The River Tunnel is a subaqueous two-tube, four-lane vehicular tunnel crossing the Patapsco River between ventilation shafts in Canton and Fairfield, a distance of approximately 6,300 feet. It is to be constructed of 21 prefabricated tunnel sections, each approximately 300 feet long.

The two ventilation shafts are steel and reinforced concrete structures on pile foundations and will be constructed in the dry in excavations made from the surface. The construction of the Fairfield Ventilation Shaft will include foundations and the first floor of the Fairfield Ventilation Building, the remainder of which building will be constructed under another contract.

The work under this contract also includes the roadway paving for the Tunnel and for the land sections immediately adjacent thereto.

The employment agency for furnishing labor on the above contract is: MARYLAND STATE EMPLOYMENT SERVICE, 41 HOPKINS PLACE, BALTIMORE, MARYLAND.

will be received by the State Roads Commission at its offices, 108 East Lexington Street, Baltimore 3, Maryland, until 12 Noon E.S.T. on the 10th day of March, 1955, at which time and place they will be publicly opened and read. QUALIFICATION OF BIDDERS REQUIRED.

Bids must be made upon the blank proposal form which, with specifications and plans, will be furnished by the Commission upon application and cash payment of $40.00 for each separate project. NO REFUND WILL BE MADE FOR RETURN OF SPECIFICATIONS AND PLANS.

No bids will be received unless accompanied by a certified check or bid bond payable to the State Roads Commission of Maryland, in the amount as set forth in the proposal form, as required by Section 13, Article 89B, Annotated Code of Maryland, 1951 Edition.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

BY ORDER of the State Roads Commission this 1st day of February, 1955. C. R. PEASE, Secretary, RUSSELL H. McCAIN, Chairman

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OFFICIAL PROPOSALS

U. S. Government

Sealed bids will be received in the office of Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone, until 10:00 A.M., EST, March 11, 1955 for furnishing all labor, equipment, material and performing all work required for alteration of Gatun Hydro-electric Station and outdoor switchyard; conversion of station service, penstock headgate, spillway equipment from 25 to 60 cycle; construction of a new control room; purchase and installation of new transformers, metal clad switchgear and associated bus duct. Plans and specifications are available for examination in the office of Procurement Officer, Panama Canal Company, 21 West St., New York 6, N. Y., and copies may be obtained upon payment of $40.00 deposit. For further information call Bowling Green 9-5380.

BUREAU OF RECLAMATION, North Platte River Projects 12655-P6, Casper, Wyoming. UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION. NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 703C-363 for furnishing labor and materials and performing all work for 34.5-KILVOLT BAY ADDITION TO ALLIANCE SUBSTATION, Transmission Division, Nebraska, Missouri River Basin Project, will be mailed to Box 280, Casper, Wyoming or delivered to the office of the Bureau of Reclamation in time for the public opening at 10:30 a.m., Mountain Standard Time, February 15, 1955, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming. Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: R. J. Walter, Jr., Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, Projects Manager, Box 280 Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $0.75 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4348) will be received at Denver, Colorado, until March 15, 1955, for furnishing one (1) 5-foot 0-inch by 6-foot 0-inch high pressure gate, and two (2) 3-foot 6-inch by 3-foot 6-inch high pressure gates each with appurtenant equipment, for the outlet works at Wanship Dam, Weber Basin Project, Utah. Delivery is desired within 180 days. For particulars address Bureau of Reclamation, Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4349) will be received at Hungry Horse Government Camp, Columbia Falls, Montana, until March 8, 1955, for furnishing labor and materials for Hungry Horse Dam River Channel Improvement and Bank Protection, Hungry Horse Project, Montana. Location near Columbia Falls, Montana. Principal items are: 25,800 cu. yds. excavation; 10,300 cu. yds. fill; and 1,900 cu. yds. concrete; and other work. Completion time 85 and 150 days. For particulars, address Bureau of Reclamation, E. L. Gouchnauer, Superintendent, Columbia Falls, Montana, or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

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POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.80 a line an insertion.

INFORMATION.

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DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

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The advertising rate is $20.50 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office, 330 W. 42nd St., N. Y. 36 for February 17th issue closing February 7th.

THE AUSTIN COMPANY

Offers Opportunities to Qualified Engineers and Draftsmen

Positions are open to capable engineers and draftsmen who can design and/or prepare plans and specifications for complete industrial plants, all related structures, and building equipment falling within the following categories:

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Assignments are in connection with our long-established offices located on the East coast and Midwest areas. Desirable working conditions, established vacation and sick leave plans, also paid holidays.

Full particulars as to education, experience, and compensation desired should be given in first letter.

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Designers Detailers Draftsmen

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Bridges, Expressways, Turnpikes

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SALES OPPORTUNITY:

COMMERCIAL INSTITUTIONAL ALUMINUM WINDOW MFR. WANTS NEW YORK MANAGER TO PROMOTE IN SPECIFICATION STAGE WITH ARCHITECTS. EXPERIENCE IN SPECIALTY SELLING TO ARCHITECTS REQUIRED.

SW-5467, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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Graduate Chemical, Mechanical, and Electrical Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of project and process engineering. Write giving full particulars regarding personal history and work experience. Please include telephone number.

Recruiting Supervisor, Box 30

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REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

DESIGN AND Construction Engineers familiar with highway, sewer, water projects. Location, Illinois, Indiana. Positions with vacations, sick leave, profit sharing. Applicaton should include education, experience, salary required. P-5291, Engineering News-Record.

DRAFTSMEN, STRUCTURAL, Midwestern structural fabricating plant has permanent openings for young draftsmen with at least three years experience in detailing structural and miscellaneous for all types of buildings and highway bridges. All employee benefits, insurance, paid vacations, etc. Reply by letter stating experience and salary requirements to P-5171, Engineering News-Record.

CONSIDERING TOP Administrative and Supervisory personnel in categories of Project manager, job superintendent, general superintendent, coordinator, chief engineer, warehouse superintendent and equipment superintendent preferably with experience on foreign projects in Spanish speaking countries. Send resume to P-5123, Engineering News-Record.

CONSTRUCTION ENGINEER. Growing Alabama contractor wants proven earner to estimate, bid and personally supervise medium size construction. Nominal salary and share in earnings. Only men with highest qualifications considered. Include education, experience, references and earnings expected in first letter. P-5204, Engineering News-Record.

GENERAL SUPERINTENDENT for large general contractor operating in Ohio, Indiana and Michigan to take charge of bridge department. Must have experience in highway bridges, wet excavation, pile driving, coffer dam work, railroad overpass, underpass and relocation. Excellent future for experienced and capable man. Write fully stating experience, education, salary expected and provide references. All replies confidential. P-5233, Engineering News-Record.

RELIABLE FIELD man: unusual opportunity for good sound construction man as field supervisor and trouble-shooter for prestressed concrete construction. Practical, with some engineering fundamentals and mechanical abilities. Advancement unlimited. Must accept responsibilities willingly. Personal habits beyond reproach. Location Southwest. State experience, salary expected, willingness to travel anywhere, availability, references. P-5236, Engineering News-Record.

BUILDING CONSTRUCTION Superintendent capable of handling jobs up to 5 or 6 million dollar value. Institutional, industrial and commercial work. Must be able to operate construction and oversee all phases of the work, including functions of the job office. Position is with well established rapidly expanding contractor in Northern Ohio. P-5246, Engineering News-Record.

DESIGN ENGINEERS

Excellent opportunity for Engineers experienced in design of Filter Plants and Water Works—Bridges and Highways. Recent Graduates also accepted. Good living conditions and Bonus and Pension Plan. Include experience, date available, salary desired in first letter. Gannett Fleming Corddry & Carpenter, Inc., Box 366, Harrisburg, Pa.

MECHANICAL ENGINEER WANTED

Graduate Mechanical Engineer experienced in the operation of Fourdrinier paper machines, refining and related equipment for large progressive mill in Middle Atlantic States. Under 35 years of age. Good salary and excellent opportunity for advancement. Give detailed resume of experience.

P-5434, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

MECHANICAL ENGINEER WANTED

Graduate Mechanical Engineer experienced in pulp and paper maintenance for large progressive mill in Middle Atlantic States. Under 35 years of age. Good salary with excellent opportunity for advancement. Give detailed resume of experience.

P-5431, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS WANTED

CIVIL ENGINEER: City of Middletown, Ohio, (Population 36,000) invites applications. Registration as a professional engineer in State of Ohio required. Salary, starting $424.38 per month, with increase after six months and each year thereafter for next three years to final salary of $558.06. Desirable qualifications: Design of Municipal improvements, pavements, sanitary and storm sewers, buildings, retaining walls, supervise field parties and construction projects. Inquiries and personnel record data should be directed to C. A. Boeke, Director of Public Service, Municipal Building, P. O. Box 530, Middletown, Ohio.

AGGRESSIVE ESTIMATOR—buyer to help organize construction company for building work in Virginia. Prefer man who can invest. State experience, present position, etc. All replies confidential. Reply to P-5368, Engineering News-Record.

WANTED RECENT Civil or mechanical engineering graduates, general field municipal water supply. Annual increase in salary and bonus. Profit sharing plan. Frequent changes in location. Pitometer Associates, Engineers, 50 Church Street, New York City.

BRIDGE DESIGNERS. Experienced and inexperienced men with a civil engineering degree wanted for a period of about 24 months in the office of a well known organization in Central Pennsylvania. State qualifications, age, salary requirements and availability in first letter. P-5355, Engineering News-Record.

STRUCTURAL ENGINEER—graduate, 3 to 6 years experience in bridge and medium building design—for work with eastern Pennsylvania consulting engineering firm. Send record resume and salary requirement to P-5383, Engineering News-Record.

WANTED — EXPERIENCED structural steel detailers. Reply with complete resume and salary expected. Berger Steel Company, Inc., State Road 552, Lafayette, Indiana.

ASSISTANT ENGINEER wanted by the City of Watertown, New York. Salary $4050 to $4530. Retirement, sick leave, vacation and longevity benefits. Experience in municipal engineering preferable. Write or call City Engineer, City Hall, Watertown, New York.

SUPERINTENDENT: TOP man capable taking over entire toll road job including grading, paving, drainage and structures. Excellent opportunity for qualified man. Job located Northern Indiana. P-5474, Engineering News-Record.

(Continued on opposite page)

POSITIONS VACANT
(Continued from opposite page)

STRUCTURAL ENGINEER. Permanent, for small progressive structural engineering office in Connecticut. Must have minimum three years experience in structural design. Work includes design of schools—institutional, commercial, industrial structures of reinforced concrete and steel. Opportunity for right man; with possible business participation when proven. Give full details in first letter; education, outline of experience and salary expected. P-5456, Engineering News-Record.

CIVIL ENGINEER: Chief of survey party for low head dams, lake level stabilization, building sites, etc. Work in field and lansing office. Requires one year of experience and B.S. degree in Civil Engineering. Write Michigan Civil Service, Cass Bldg., Lansing 13, Michigan.

ASSISTANT CITY Engineer, Mount Clemens, Michigan (pop. 20,000) engr. grad. Opportunity for early advancement. Salary $6,000. Apply Fred Soule, City Clerk.

SUPERINTENDENT—COMPLETE knowledge of road construction and bituminous paving. Must be able to estimate and take charge of complete road job. Year around position with reliable construction company in Central New York. P-5413, Engineering News-Record.

ENGINEER EXPERIENCED in triangulation and construction surveys for work in north central states. Send record resume, reference and salary requirement to P-5397, Engineering News-Record.

WANTED: BRIDGE & Highways designers with office and field experience by consulting engineering firm in Pennsylvania. Give complete details and salary desired. P-5389, Engineering News-Record.

GRADUATE STRUCTURAL or Civil Engineer, experienced in elevated water tank business preferred, to provide administrative, executive sales and general office assistance to Mid-Western Company. Permanent position with future for responsible aggressive man. Give full resume, age, family. P-5481, Engineering News-Record.

ASPHALT ENGINEER: Must know and be able to control all phases of asphalt and oil construction. Experience with construction firm desirable. Plain States area. P-5486, Engineering News-Record.

ROCK CRUSHER Supt: must know all phases of production and gradation. Experienced with portable plant necessary. Plain State area. P-5487, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

CONTRACTORS REPRESENTATIVES for gunite and protective coating. Calling on heavy construction, water works field, etc. Commission. May carry other lines. Mid-Atlantic and New England States only. RW-5365, Engineering News-Record.

POSITIONS WANTED

CONSTRUCTION STIFF, Rigger, who has worked with lubricating oil for years as a hobby, seeks employment in a modest capacity, with a construction company, or other fleet owner using large quantities of oil, where his information and paraphernalia will be investigated, and where he will be encouraged to go ahead with some things he wants to do. Local or foreign. Sidney Stribling, Sta. 8, Asan, Agana, Guam, M. I.

NAVY CIVIL Engineer Corps Officer being released from active duty in April, BSCE, 25, 4 years experience in plant maintenance and new construction, seeks position with construction firm, preferably in Texas. PW-5298, Engineering News-Record.

CONSTRUCTION SUP'T—22 years experience, Highway bridges, office buildings, schools, factories and sewerage treatment plants. Good organizer, co-ordinate subs. Will travel but prefer mid west. PW-5329, Engineering News-Record.

COST ENGINEER, 41, seven years central power station construction costs and C.P.R. inventory. Available 60 days. PW-5382, Engineering News-Record.

Available Engineer Executive

Fifteen years in charge engineering dept. design construction, operation large electric utility. Ten years investigation reports on diversified projects. Have successfully directed large staff from inception to completion of works. Engineering and construction costs conscious.

PW-5402, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

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25 Years in Heavy Construction—Schooled Accountant—Expert on Contractor's Insurance—Available Immediately—will travel anywhere.

PW-5446, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS WANTED

CONSTRUCTION MANAGER — R.P.E. with long experience on buildings & heavy construction as project engineer, sup't. & chief estimator. Qualified to negotiate contracts. PW-5321, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT or Project Manager 35 years in heavy construction, most recent on oil refinery and chemical plants. Also on major steel mill expansion in Chicago area. Past experience includes several major office buildings in Chicago as well as two oil refinery units in Europe. Can supply highest references from former employers. Available after Feb. 1st, 1955 am willing to go anywhere, but would prefer the far west or deep south. Reply to PW-5327, Engineering News-Record.

CONSTRUCTION EXECUTIVE—Project Manager. Top construction management. Background; chemical, industrial, multiple housing, heavy const., public works. Excellent customer-labor relations. Following of producing personnel. PW-5345, Engineering News-Record.

CONSTRUCTION ENGINEER, N. J. license; 27 yrs. varied experience; steam generated power plants, industrial buildings, heavy foundations and water front facilities. Supervise various trades and sub-contractors, estimate, prepare reports, etc. Available immediately. PW-5113, Engineering News-Record.

COST AND Office Engineer (27) six years industrial construction wants chance to help contractor save time and money. PW-5238, Engineering News-Record.

CONSTRUCTION SUPT. 37 thorough knowledge of school, housing, hospital & varied types construction. 17 years construction experience. 17 years construction experience. PW-5427, Engineering News-Record.

ESTIMATOR—C.E., pricing & quantity take-offs. 12 years heavy construction (bridges, highways, foundations, tunnels, piers). Experience includes pricing, take-offs, setting up & evaluating cost systems, project manager, & design engineer. P.E., 34, N. Y. City, Long Island, Westchester. PW-5394, Engineering News-Record.

LICENSED STRUCTURAL Engineer, 31, BSCE, 6 yrs. Top flight experience. Have reached peak in pres. position. Desire responsible position with opportunity. Will relocate U.S.A. or abroad. PW-5473, Engineering News-Record.

CONSTRUCTION EXECUTIVE—19 years experience Latin America-Europe all phases heavy construction. Top administrative background including negotiation and project management. At present executive vice-president and managing director one of America's oldest construction firms. Will consider foreign assignment only. Age 48. American fluent Spanish. PW-5470, Engineering News-Record.

CONSTRUCTION ENGINEER civil age 41. 15 years heavy building const. Factorys, laboratorys, atomic installations, refinery, hospital etc. Excellent work and cost record. Available as chief field engineer or asst. supt. for contractor on large project. Any location considered. PW-5439, Engineering News-Record.

CIVIL ENGINEERING Draftsman and surveyor. N.Y.S. Lic. 53. Over 30 years municipal experience, highways, water-works, sewers, etc. A-1 references. Reply PW-5428, Engineering News-Record.

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20 years experience with government and private agencies domestically and abroad, desires manufacturers representation for The District of Columbia, Virginia, Maryland and North Carolina. Detail record will be furnished upon request. Address reply to

RA-5466, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

POSITIONS WANTED

CONSTRUCTION SUPER. or assistant. Age 45 with 29 yr. experience in most all phases. Not a C.E. but an accomplished, practical know how in the field. Know men and equipment, as asset to anyone. Will prove the above statement, plus good character etc., by any rigid test you wish. If in doubt will at my expense. Go anywhere preferably Europe. PW-5423, Engineering News-Record.

ASST SUPT or general foreman 25 years experience subways, tunnels, foundations, underpinning, sewers & utilities. Desires position. PW-5438, Engineering News-Record.

HIGHWAY DESIGN Engineer wishes to join consulting firm working on preliminary and final contracts. PW-5485, Engineering News-Record.

STRUCTURAL STEEL detailing work wanted by experienced men. Bridge detailing a specialty. Located near metropolitan N. Y. area. PW-5484, Engineering News-Record.

ENGINEER, HEAVY construction, BSCE, 27. Experience: chief of party, form design, field estimates, sub contractor coordination, field supervisions. Responsibility desired. PW-5493, Engineering News-Record.

PART TIME WORK WANTED

PART TIME work. Retired licensed structural engineer available for design, detailing and estimating. PTWW-5301, Engineering News-Record.

ESTIMATOR; REGISTERED mechanical engineer; 16 years experience, desires part time work. Cost estimation or design work. Location in Md., Dist. of Col., or Va.; special machinery developed. PTWW-4999, Engineering News-Record.

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SS-5379, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

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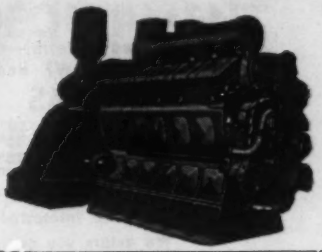

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Albert Pipe Supply Co., Inc. 109
Ambursen Dam Co., Inc. 106
American Air Compressor Corp. 107
Arabian American Oil Co. 104
Austin Co. 104

B & V Equipment Co., Inc. 109
Bartholow Machinery Co., J. W. 108
Boyer, Co., R. H. 106
Buff 110
Burson, C. K. 108

Carlyle Rubber Co. 107
Contractors Machinery Co. 106, 109

Dallavia Co. 105
Deatherage & Son, G. E. 105
Drachman Steel Corp., Hy. 108

Ehrbar Inc., Edward 108, 109
Equitable Equipment Co., Inc. 106

Forsythe Equipment Co., Inc. 107, 109
Foster Co., L. B. 106
Frank, M. K. 109
Frantz Equipment Co. 106
Frazier-Davis Construction Corp. 107, 109

Gannett Fleming Corddry & Carpenter Inc. 104
General Sand and Stone Corp. 108
Gillis & Co. 109
Greenpoint Iron & Pipe Co. 109
Greensburg Machine Co. 107
Guion, H. P. 106

Hickerson, Roy D. 110
Houston Shell & Concrete Co. 108
Howard, Needles, Tammen & Bergendoff 104

Kershaw Manufacturing Co., Royce 108

Lestan Corp. 109

Mason & Bacon Co. 109
McCarrick Brothers 106
Midwest Steel Corp. 109
Mid-States Pipe & Supply Co. 109
Mississippi Valley Equipment Co. 106, 107
Morrison Railway Supply Co. 109

National Blue Print Co. 110

Romeo Rock Bit Service Co., Ben 105

Schoonmaker Co., Inc., A. G. 107
Sheaf & Co., Inc., Geo. 106
Sherman Crane Service Inc., Roger 106

Tagco Inc. 109
Tamblyn System 105
Tuckahoe Construction Co., Inc. 108

Uehlein, Frank J. 106

Warren-Knight Co. 110
Weiss Co., B. M. 107
Williams Construction Co. 107, 108
Wilson Engineering Co. 105
Wold Co., O. M. 108

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Butler Mfg. Co. 74
Byers Co., A. M. ..... 2nd cover

Cement Gun Company 28
Clow & Sons, James B. 32
Concrete Reinforcing Steel Institute 8
Continental Motors Corp. 96

Detroit Steel Products Co. 83
Dodge Div., Chrysler Corp. 73
Dorr Oliver Inc. 71
Dudgeon, Inc., Richard 72

Economy Forms Corp. 111
Eimco Corp., The 49-64

Fennel Instrument Corp. of America 48

Griffin Wellpoint Corporation 89
Gunite Concrete & Construction Co. 71

Harnischfeger Corporation 94

International Harvester Co. 6, 7
Irving Subway Grating Co. 65

Jenkins Bros. 16
Joy Mfg. Co. 30

Keasbey & Mattison Co. 9
Kerrigan Iron Works Inc. 12

LeTourneau-Westinghouse Co. 77, 79, 81
Lewis Asphalt Engineering Corp. 72
Lufkin Rule Co. 68

MacArthur Concrete Pile Co. 91
Master Builders Co. ..... 3rd cover
Maxon Construction Co., Dumpcrete Div. 28
McConnaughay, K. E. 98
McGraw-Hill Book Co. 97
McKiernan-Terry Corp. 71
Midwestern Industries Inc. 69
Moretrench Corp. 91

Northwest Engineering Company 3

Pennsylvania Drilling Co. 111
Phoenix Bridge Co. 91
Portland Cement Assn. 85
Price Bros. Co. 29

Raymond Concrete Pile Co. 13
Reynolds Metal Co., Inc. 38
Ric-Wil Inc. 67
Roebling's Sons Corp., John A. 4
Ryerson & Sons, Inc., Jos. T. 88

Smith Co., S. Morgan 46
Soilaire Industries 92
Spencer, White & Prentis, Inc. 89
Sprague & Henwood, Inc. 72

Stoody Company 31
Summitville Tiles Inc. 32
Symons Clamp & Mfg. Co. 2

Tapecoat Co. 66
Texas Company ..... 4th cover
Timber Enginering Co. 87
Timken-Detroit Axle Div., Rockwell Spring & Axle Co. 34, 35
Timken Roller Bearing Co. 1
Tinney Drilling Company 40

U. S. Pipe & Foundry Co. 15
U. S. Rubber Co. 20
U. S. Steel Corp. 42, 43

Vibro-Plus Products, Inc. 30

Warren Knight Co. 40
Willys Motors Inc. 68, 69

Youngstown Sheet & Tube Co. 41

Professional services 110

SEARCHLIGHT SECTION

(Classified Advertising Section)
H. E. Hilty, Mgr.

Employment 104, 105
Educational 105
Notices
Proposal 100-103
Equipment
(For Rent, Sales, Wanted) .. 106-110

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EDITORIALS

Easy on Hasty School Aid

FEDERAL AID for schools is properly being considered seriously by both Congress and the Administration. Yet just because the need for this type of assistance is so great, there may be a tendency to push for passage of legislation before Congress, state legislators and local school districts have had ample time to study and evaluate all the implications of a federal subsidy. Such haste might lead to waste.

For one thing, there is the question of how to raise the money. With the federal government already hard pressed to stay within present debt limits, financing school aid is bound to pose some knotty problems.

But assuming, as one must, that money for schools can be raised, there are equally difficult questions to be answered with respect to the operation of a school aid program. How, for example, should funds be distributed to the states? Should they be given out in proportion to need, and if so, how should need be measured? Or should they be distributed in proportion to population growth, children of school age, current state school expenditures, school-tax payments or some other equally justifiable criterion?

If an equitable distribution formula can be found, then how can the federal government ascertain that the money given to the states will be spent to meet essential needs? Federal aid to the states for highway construction, for example, is supervised by the Bureau of Public Roads, which has set up minimum standards, checks plans submitted by state highway departments to see that these standards are met and inspects the work. Both the Veterans Administration and the Federal Housing Administration, which insure mortgage loans, also have set up minimum standards for houses and check plans against these requirements.

In view of these precedents it would be logical to assume that, if federal aid is to be given for schools, some government agency, possibly the Office of Education, will have to be expanded and assigned the task of setting up minimum standards and checking plans. There is also the question of controlling maximum standards. With extra federal money available, there might be the temptation in some cases to build too elaborately—auditoriums bigger than necessary, overly large gymnasiums, or unduly expensive ornamentation. In the case of highways, maximum standards are subject to some control by requiring the matching of federal funds with local funds. This would also, no doubt, be a requirement for school aid, but if so, what matching formula should be used?

All these questions must be answered in any legislation on school aid that may be passed. And hastily drawn bills are sure to omit some of the answers.

In view of the complexity of the problem and the large sums of money involved, adequate time should be allowed for studying the Administration's proposals and the various bills bearing on this subject submitted to Congress. Otherwise, a federal school aid program may at best provide insufficient assistance and at worst be an invitation to waste public funds.

"Partnership" on Waterways

PRESIDENT EISENHOWER believes his idea of federal partnership with local interests can be applied to waterway development. This was revealed when his budget message omitted funds for deepening the Delaware River from 35 to 40 ft up to Morrisville, the site of the new plant of the U. S. Steel Corp., on the ground that the corporation, as the beneficiary, had made no provision for paying part of the cost as he believed it should.

The issue that the President has raised by this action is an involved one which can be expected to cause much controversy in Congress. Heretofore, all river and harbor dredging work has been paid for by the federal government. All that was required was a showing by the Army Engineers that the estimated annual benefits exceeded the annual cost. The same principal has been applied to all inland waterways built since the days of the private canal companies. No charges were placed on users of the harbors, and no tolls were placed on vessels moving along the publicly owned artificial channels, with the exception of the Panama Canal. Last year Congress approved the charging of tolls on the proposed St. Lawrence Seaway.

Requiring the direct beneficiaries of a canal, where tolls can be collected from all vessels using a lock, is not quite the same thing, however, as attempting to assess a fair share of the cost of deepening a major harbor on its beneficiaries. In the case of the Delaware, while its deepening to 40 ft at the present time would benefit only one corporation (U. S. Steel) the work would actually open the whole Philadelphia-Camden port area to deeper draft vessels. Moreover, the new steel mills at Morrisville have brought other types of business and increased population to that area, resulting in a great increase in taxable property. Other companies can also establish plants on the waterway. So the steel company logically questions the justification for assessing a large share of the deepening cost against it alone.

Nevertheless, the theory behind President Eisenhower's proposal is sound. The approach to local participation, however, would appear to be by the route of requiring some local agency such as a port district or port authority to share the cost with the federal government. Such a spreading of the costs of harbor improvements over the whole region appears more equitable than attempting to assess them against one or more immediate beneficiaries.

rigid concrete specifications here...

Views of Peribonka River Power Development.
Peribonka No. 1 Powerhouse—located at Chute du Diable, Quebec.
Owner: The Aluminum Company of Canada, Ltd., Montreal, Quebec;
Consltg. & Des. Engrs.: Shawinigan Engineering Co., Ltd.;
Contr.: Fraser-Brace Engineering Co., Ltd., Montreal.

engineers of Peribonka Power Plants employed POZZOLITH* to help meet requirements

Specifications for these important projects were rigid and exacting. Several types and classes of concrete were involved. Engineers insisted on adequate flow and workability without excessive bleeding or segregation.

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Pozzolith has proved to be an effective aid in producing excellent results and important savings on major jobs across America.

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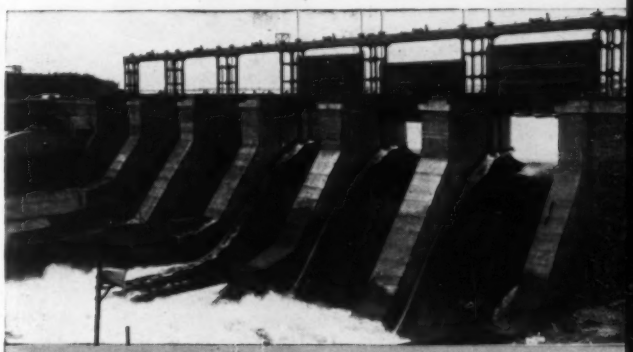
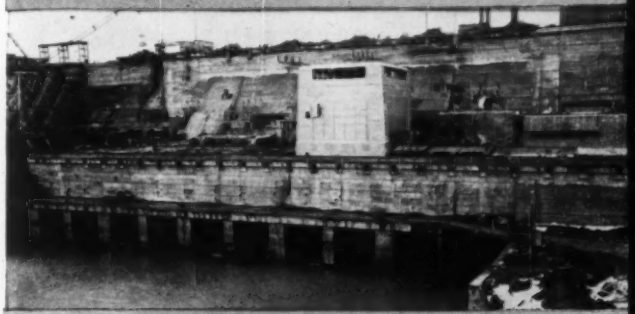


Peribonka No. 1 Spillway—located at Chute du Diable, Quebec.
Owner: The Aluminum Company of Canada, Ltd.; Engineers and Contractor same as Peribonka No. 1 Powerhouse.



Peribonka No. 2 Powerhouse—located at Chute a la Savane, Quebec. Owner and Engineers same as No. 1 Project. Contr.: Pentagon Construction Co., Ltd., Montreal.

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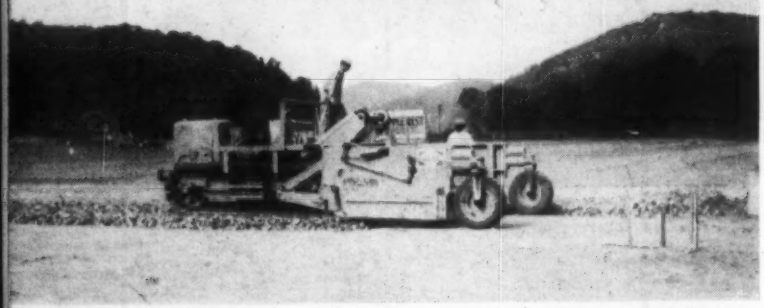
New Ford plant has paved area equal to 20-mile Asphalt highway



Spreading broken stone for the base course of pavement at new Ford assembly plant in Mahwah, N. J.

Applying hot Texaco Asphalt Cement under pressure to the broken stone base course.

Laying wearing surface of plant-mixed Texaco Asphaltic Concrete on asphalt-penetrated base.

The Ford Motor Company's new assembly plant at Mahwah, N. J., will supply the heavy demand for Fords in and around New York City. Everything about the plant is "king size," including the yardage of paving required for its parking areas and roads—sufficient to pave a highway 24 feet wide and 20 miles long.

On parking areas, Ford constructed a 6-inch stone base, penetrated with 1.6 gallons of hot Texaco Asphalt Cement per square yard, topped by a 1½-inch plant-mixed Texaco Asphaltic Concrete wearing surface.

On the plant's roads, the 6-inch stone base was penetrated with 1.75 gallons of asphalt per square yard topped by two layers of Texaco Asphaltic Concrete with a combined thickness of 2½ inches.

Choice of an asphalt base and asphalt surface gives Ford a completely *flexible* pavement, which maintains full contact with the supporting subgrade, despite any subsequent settlement of the latter. In terms of pavement performance, this flexibility results in the ability to withstand traffic impact years longer, plus a lower maintenance cost.

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